AVIATION WEEK

A McGRAW-HILL PUBLICATION

MARCH 29, 1948

The Birdmen's Perch

By *Major Al Williams,* ALIAS, "TATTERED WING TIPS,"
Gulf Aviation Products Manager, Gulf Bldg., Pittsburgh 30, Pa.

Arizona is the type place we like!

Know what they're doing in Arizona?

A newspaper and an association of flyers down there have set to work air-marking every community of more than 100 population!

And in the first six months of their campaign they completed 103 of the air-markers. I figure on having the whole job (150 markers) done about the time you read this!

We like people like that who get up and git instead of sitting around discussing the situation. Any situation.

We flap our tattered wing tips in admiration for the Arizona boys!

They gave us a great idea too. It's in the next paragraph.

ON YOUR MARK

Our great idea is about marking, also.

You can see a lot of Gulf Discs at airports around the country, which say "Here's the place to get Gulf Aviation Products . . . such as Gulfpride Oil."

And while these discs remind you to use Gulfpride Oil, they don't remind you *why* you should use it!

They don't remind you of the Alchlor Process that extra refining step that gets extra carbon-and-sludge formers out of Gulfpride *after it's already been refined!* They don't remind you how much more and better lubrication you get quart for quart from Gulfpride.

Our idea is to write these facts in huge letters beneath the Orange Discs.

But we can't think of any place where there's enough room for them.

Until we figure this knotty problem our, you'll have to continue to remind *yourself* of Gulfpride's tougher, longer lasting lubricating film.

Which you can do by using it!

BLANK DEPT.

This is the Blank Dept. this month, because we still haven't figured what you Perch Pilots want here.

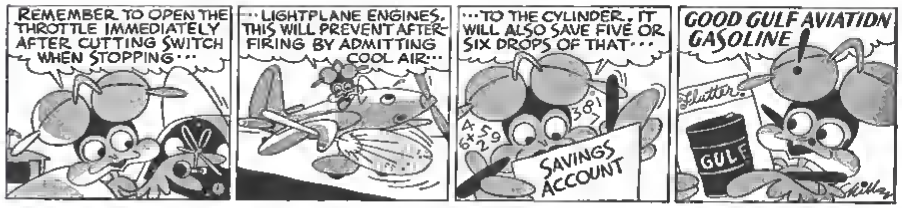
We'll admit your letters did finally start rolling in. A lot of you want to continue the Little Known Facts Dept. Some of you want a Pet Pilot Peeve or Favorite Flying Gripe Dept.

And one diplomat even suggested alternating Little Known Facts with Favorite Flying Gripes!

We'll try to let you know next month, because by next month we figure we'll have enough mail to show clearly what you like to read.

If we have, we'll announce the name of this department.

Send your idea to the address up above, there.



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Vol 48, No. 13 **AVIATION WEEK** Mar. 29, 1948

Pro . . . ***and Con***

Martin

Taft

Marshall

Truman

Congress Forcing Air Fund Boost

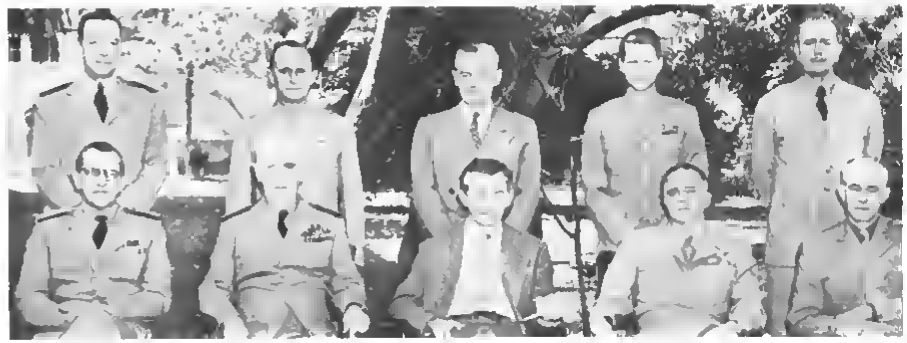
Spurred by a series of Russian victories in the cold war, Congress last week was forging a new military air policy. Prospects were bright for multi-billion dollar increases in aircraft procurement funds for fiscal 1949.

As Congress moved toward action that would lift the aircraft industry out of its post-war production doldrums the following were significant developments:

▪ **Strong support by Senate Majority Leader Robert Taft (R., Ohio) and House Speaker Joseph Martin (R., Mass.) assured additional funds for expansion of airpower a smooth passage through Congress. Republican Congressional policy group announced that building "airpower second to none" was the key plank in the Republican national defense platform.**

▪ **Joint Chiefs of Staff met with President Truman and Budget Bureau Director James Webb in the White House to prepare new increased national defense budgets for early submission to Congress. These proposals ranged from a one to ten billion dollar increase in the defense budget.**

▪ **Gen. George Marshall,** former Army Chief of Staff, now Secretary of State and longtime infantryman, told the Senate Armed Services Committee that airpower was too expensive and could not do the national defense job U. S. security required. Marshall rejected airpower to make a strong plea for Universal Military Training and a draft which will be aimed primarily at filling



Top national defense officials who attended the Key West conference. Left to right (front), Adm. Louis E. Denfield, chief of naval operation, Fleet Adm. William D. Leahy, chief of staff to the President; Secretary of Defense James Forrestal, Gen. Carl Spaatz, chief of staff, Air Force; Gen. Omar N. Bradley, chief of staff, Army, (rear) Vice Adm. Arthur W. Radford, vice chief of naval operations; Major Gen. Alfred M. Gruenther, director, Joint Staff, Mr. W. J. McNeil, special assistant to the Secretary of Defense, Lt. Gen. Lauris Norstad, deputy chief of staff for operations, Air Force; Lt. Gen. Albert C. Wedemeyer, director plans and operations, Army General Staff. They said that all was well. (Press Assn.)

the ranks of the Army Ground Forces

▪ **Boeing Aircraft Co.**, makers of the B-50, only very heavy bomber capable of immediate mass production, prepared to step up operations in both Wichita plants and its Renton, Wash factory Increased B 50 production and modernization of B-29s coming out of storage at these plants indicate USAF buildup of Cen George Kenney's Strategic Air Force long range striking arm

▪ **Both USAF and Navy** moved to step up their standby aircraft plant program Air Force acquired title of four plants from War Assets Administration In cluded are Curtiss-Wright Foundry, Lakeland, Ohio, Fisher Assembly Plant, Cleveland, Douglas No 3, Tulsa Navy has acquired four and has plans for more Included Pratt & Whitney, Kansas City; North American, Dallas, and General Motors, Trenton, N J

• **Aircraft manufacturing shares** continued to pace stock market leaders for the third successive week

The military pot boiled on Capitol Hill with strong competition for defense dollars between Ground Force advocates of Universal Military Training and the draft, the Air Force and the Navy Strong Republican support for top priority to airpower overshadowed marshalling of Truman Administration forces to snub airpower in favor of its UMT-draft program Indications are that the Air Force will get at least a two billion dollar boost bringing its fiscal 1949 appropriation to a $5 054.-000,000 record peace-time total and just short of its 70 group program requirements Naval Aviation was slated for a considerably smaller boost

► **Truman Snub**—Biggest surprise of the week was the cold shoulder given air power by the Truman Administration The President, a horse artillery veteran, pointedly omitted all mention of air power from his special message to Congress calling for the draft and UMT as the only effective counters to Russian aggression in Europe Secretary of State Marshall also took sharp issue with advocates of airpower as the keystone of national security

Marshall, whose pre-war War Department budgets allotted Air Corps hardly as much as Naval Aviation, indicated that airpower was valuable principally in close support of ground forces —a view which is shared by the Russians

Meanwhile the much heralded Joint Chiefs of Staff meeting in Key West Fla., failed to produce any evidence it had resolved basic service differences other than a press release assuring that all was well Unconvinced was Rep Carl Hinshaw (R., Calif.), vice chairman of the Congressional Air Policy Board who twice took the House floor to denounce the failure of the Key West conference to produce the unified strategic defense plan demanded by Congressional leaders

In a speech keynoting general Congressional sentiment, Hinshaw charged that instead of the "unification" of the services directed by Congress "we are now getting triplification"

► **Condemns "Frittering"**— "I cannot be silent and see the strength of our national defense, the defense for which Congress has appropriated upward of $10 billion for the present fiscal year," Hinshaw declared, "frittered away by confusion, neglect, and failure to provide the comprehensive over-all planning that is implicit in the policies laid down by Congress" He attributed claims of both Naval Aviation and USAF for strategic bombing missions as a major cause for duplication and waste of effort and funds, and excessive overhead costs of the air arms as another —only 22 percent of the current military aviation budget ($871 million out of $4 billion) goes into the actual procurement of airplanes, the rest goes primarily to overhead

Hinshaw reported his understanding that the President has empowered National Defense Secretary James Forrestal "to order" a decision among the chiefs of staff on a unified strategic plan if agreement was impossible Requirements for implementation of this plan will receive majority support

Sudden increase of activity in Boeing's three wartime plants at Wichita and Renton was the only tangible reflection of the international situation in the aircraft manufacturing industry Survey of key East and West Coast manufacturers indicates that expansion plans are still in a highly nebulous state awaiting definite word on both Joint Chiefs of Staff requirements and allotment of anticipated increased procurement funds

► **Expansion Time Table**—Industry leaders estimated that at least a year, probably longer will be required for any substantial aircraft production program to become effective Government controls on both material, where aluminum is already in short supply, and labor, where the proposed draft may produce problems, will be necessary for even modest expansions Present time lag on aluminum from mine to processed stock delivered to manufacturing plants is estimated at one year with engine production allotted a similar time cycle

Manufacturers (such as North American) of military aircraft that bulk largest in the immediate picture are already jammed to the capacity of the limited production facilities they retained after postwar contraction It will be necessary to put idle surplus plants back into operation Manufacturers such as Curtiss Wright, Lockheed and Douglas who are now short on military backlogs could be expanded considerably faster

Financing an expansion program appears to be no great problem since manufacturers' credit has rebounded with reports of the air policy groups and the rising tide of war talk in Washington Even if private financing remained wary, there are ample government financing facilities available

Marshall on Airpower

Following are extracts from the testimony of Gen George Catlett Marshall, former Chief of Staff and now Secretary of State, before the Senate Armed Forces Committee

"I think however much any future war starts in the air, as in the past, it will end in the mud on the ground I think one of the great difficulties in regard to airpower and the American people's attitude toward life is that application of airpower involves so much loss of life of non-military civilians and children as well as grown people That is almost unavoidable and is very terrible

"The thing that influenced me the most and I do not mean in action but a consternation (sic), was the highly successful fire raid on Tokyo where in the neighborhood of 100,-000 people are reported to have lost their lives Hiroshima was a much smaller affair and certainly a far less agonizing loss

"That is one of the terrible things we have to consider in the matter We had reached the point in the last war where we were so infuriated over the practices of the Japanese and the Germans that the American people were willing to go through with it I thought it was vital that they should But it is a terrible thing to do to use that type of power If you are confronted with that in the beginning of a war you are also confronted with a very certain reaction of the American people

"THEY HAVE TO BE DRIVEN VERY HARD BEFORE THEY WILL AGREE TO SUCH DRASTIC FORCE

"That is a rather dangerous thing to say and yet I think it is something to think about It is not that I am proposing for that reason that we do not have airpower, and I am not at all But when your threat is to the lives of every man, woman and child of the country that is a very terrible thing It may be unavoidable but I do not think it is going to be the controlling factor and I think it is a tragic necessity when it has to be done."

NACA Engine Research Plots New Boosts for Jet Power

Increase in pressure ratios and operating temperatures point to longer plane range and operating economies, IAS meeting told.

By ROBERT McLARREN

New methods of substantially boosting potential power of current turbine engines were disclosed at the Third National Flight Propulsion Meeting of the Institute of the Aeronautical Sciences at Cleveland.

By increasing pressure ratios and operating temperatures, great increases in airplane range and operating economy could be achieved, according to NACA engineers who examined the potential of the aircraft engine in terms of theoretical calculations On the more practical side, production and operating problems of jet engines revealed a broad gap between present attainments and the maximum capabilities of the type Review of the design problems inherent in jet installations at least partially explained this discrepancy

► **Increased Pressure Ratio**—Increasing the pressure ratio of turbojet compressors from 4 to 25 at a turbine inlet temperature of 1540 deg F. would increase the range of present jet fighters and bombers as much as 45 percent at 500 mph at 30,000 ft., indicating the tremendous gains still to be made through compressor development An increase in pressure ratio to 40 under these same conditions would reduce specific fuel consumption to 0.7 lb of fuel/lb thrust/hr from its present figure of 1.0 and over

Study by Reece V Hensley and Newell D Sanders, of the NACA Flight Propulsion Research Laboratory, showed that improvements in component efficiencies do not offer extensive promise of economy—contrary to earlier predictions These increases in pressure ratio can be gained only through the use of a greater number of stages, larger turbines or higher turbine speeds, all of which add weight to the engine Current jet engines weigh about .4 lb per pound of thrust With a pressure ratio of 4 this figure would rise to 1.0. A pressure ratio of 20 would raise it to 1.5 lb /lb thrust, half again as heavy as current reciprocating engines

Increased speed also increases fuel consumption, even at high pressure ratios At a pressure ratio of 40, fuel consumption would be .7 lb /lb thrust/hr, at an airspeed of 500 mph At 1000 mph this consumption would increase to 1.0 and at 1500 mph. consumption would be 1.2 lb /lb. thrust/hr

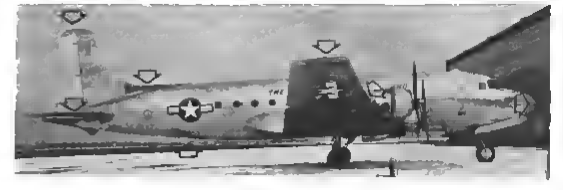
► **Turboprop Probe**—An investigation of the turboprop engines by Robert O Bullock and Robert E English of NACA revealed substantially the same effects, although the fuel consumption of this type is much lower Potentially the most economical engine, the turboprop specific fuel consumption could be reduced to 0 2 lb fuel/hp /hr., less than one half that of the best reciprocating engine, if a pressure ratio of 60 could be attained At a pressure ratio of 32, and operating at a turbine inlet temperature of about 2500 deg F, the turboprop could increase the range of present types 60 percent at 30,000 ft

Major design problem of the turboprop remains the gearing of the turbine to the propeller This is pointed up sharply by the fact that the propeller and gearbox of such a design would comprise about 70 percent of the total weight, the compressor, turbine, combustion chamber, etc comprising the remaining 30 percent

► **Fuel Economy**—Turbine compounding of the reciprocating engine offers remarkable possibilities of fuel economy, provided that improved fuels can be made available Although increased compression ratios could produce these gains, they cannot be realized due to the knock-limit rating of present fuels, which prevent the use of compression ratios substantially higher than the present 6-7 By permitting the turbine to share the work equally with the reciprocating engine, and by using a compression ratio of 10, a compound engine can operate at a specific fuel consumption of only 0 31. The weight of the compounding equipment, even with the use of low compression ratios, would prevent reductions much below 0.8 lb engine/hp and with a compression ratio of 10 this would be doubled. NACA engineers LeRoy V Humble and Cecil G Martin revealed that, unlike the jet engine, substantial increases in net output and fuel economy can be gained in the compound engine through increases in component efficiencies

► **Compound Engine**—A promising new approach to the compound engine problem was taken by NACA engineers Arnold E Biermann and M J Tauschek in their study of a two-stroke cycle compression ignition compound engine, which could increase the range of current types 80 percent through remarkably low fuel consumption of only 0 3 lb /hp /hr Development of this type might permit the extraction of 4 hp per cu in of displacement and at a specific engine weight of only 0 75 lb /hp These gains would be afforded through the use of 2000 lb per sq in maximum cylinder pressure and 2400 ft per min mean piston speed

J. W. Bailey, service engineer of Allison Division, General Motors Corp., revealed some of the results of upwards of 100,000 hr of service time on the Allison-GE J-33 turbojet engine as installed in the Lockheed P-80 fighter. Service failures have been substantially corrected through an extremely careful control of the turbine and compressor forging process from the original alloy throughout its machining and installation. Indication of this reduction of failure is seen in a study of P 80 acci-



WIRELESS RADIO SHIP

Loaded with radio equipment yet showing no external antennae, this ATC C-54 is being used as a flying laboratory to develop nonmagnetic plastic cover material for radio antennae Arrows point to new locations of standard radio equipment to permit internal antenna glide path localizer in the nose, liaison set antenna in wing leading edge and tip, marker beacon receiver in fuselage aft belly, radio compass loop and VHF command and homing antenna in tail surfaces All antenna are enclosed by laminated, resin impregnated Fiberglas cloth baked to a hard, glass-like surface

dents which indicate that about 44 per cent of the total failures are the result of pilot or ground personnel, with only 7½ percent of the failures being due to the engine

► **Service Jet Failures**—These failures are considerably below current airline performance, in which engine failures occur in about 15 percent of total accidents. The output of the J-33 has been increased 30 percent in only three years of development, whereas the conventional V-1710 engine output was increased 22 percent in its first three years indicative of the intensive development being accorded the turbojet engine.

Static test time of new types required by the Air Force has been increased from 50 hr. to 100 hr. to the current 150 hr.

Major operational problem is the nearness of military rated turbine speed to the critical speed of the design, providing little or no margin for overspeed safety.

► **Pilot's View**—Major R. L. Johnson, Wright Field test pilot, discussed the problems of the jet fighter from the pilot's point of view and disclosed that greater power is the most pressing current need of the jet fighter to permit faster takeoff, better altitude characteristics and greater flight safety. Maj. Johnson voiced a plea for a simple starting control which would prevent "hot starts" by automatically controlling fuel flow and turbine inlet temperature during this critical phase of operations.

The fighter pilot's greatest concern is the danger of being struck by a jettisoned canopy, which usually twists rapidly upon being free, often striking the pilot's head with fatal results. The jettisonable nose section is preferred to the newly developed ejection seat. Rapid flight speeds and maneuvers have rendered current gyro instruments obsolete, he said, and their errors constitute a hazard during instrument flight conditions.

► **Boost Controls**—Power-boosted controls are proving unsatisfactory at high altitudes where at low indicated speeds control forces are light yet the power boost provides forces used at sea level, resulting in violent overcontrol at high altitudes. Improper matching of engine fuel consumption with airplane maximum speed altitude has resulted where current jet fighters are flown at low altitudes, where jet engine fuel economy is best but airplane flight speeds are low, instead of both being operated at the high altitude of best airplane cruising speed.

Increasing demands for more powerful jet engine accessories may soon result in the turbojet engine being hung from its accessories, according to Dr. Milton U. Clauser, Douglas Aircraft Co., who recommends remotely located accessories. He proposed four standard accessory drive pads on all jet engines from which a wide variety of accessories could be driven. These drives should feature interchangeable sleeves to permit engine changes in different airplane types. One solution to the accessory problem was proposed by I. H. Sharp, Convair engineer who outlined a pneumatic system driven by an auxiliary turbojet engine from the compressor of which air is bled for the system. Savings in weight and power could be achieved by pneumatic accessories including pneumatic motors to operate generators and other devices. This system would have disadvantages at high altitudes, it was pointed out.

PROPOSED UNIFORMS

Proposed Air Force uniforms for enlisted men are examined by Rep. John Taber (R., N. Y.), chairman of the House Appropriations Committee, which saw the uniforms at an executive session. The uxbridge blue designs are modeled by M/Sgt. Edward Ancas (left) and Pfc. Claude Ridings. (Press Assn. photo)

Yearbook Available

AVIATION WEEK'S 1948 YEARBOOK with latest statistics and analyses of military aviation, aircraft manufacturing, the air transport industry and private flying is still available in limited quantities. Numerous inquiries are being received weekly from subscribers who require extra copies for company executives and libraries.

Orders should be sent to AVIATION WEEK, 330 West 42nd St., New York 18, N. Y. Copies are $1 each, postpaid.

Pension Cost Survey Is Made by Industry

Unions are concentrating their heavy fire this year on pensions, insurance plans and other so-called "fringe" issues. The government has no information on what these payments cost employers every year.

In an effort to find an answer to that question, a survey is being made by the Automotive and Aircraft Parts Manufacturers, Inc. Preliminary reports from 85 members of this association indicate that last year "fringe" payments cost them more than 12 cents an hour, over and above direct wages, for every man-hour worked.

The survey is not yet completed, but this is what the 85 companies which have reported so far did last year:

- All granted vacations costing 4.5 cents an hour.
- 80 paid social security, workmen's compensation and unemployment compensation costing 4.8 cents an hour.
- 51 granted pay for holidays not worked costing 2 cents an hour.
- 48 paid union officials for time spent settling grievances or negotiating a contract at a cost of a quarter of a cent an hour.
- 30 paid Christmas or other special bonuses costing a quarter of a cent an hour.
- An unspecified number paid a half-cent an hour for pensions, health insurance and separation pay.

Richardson New Fairchild President

L. B. Richardson, executive assistant to Curtiss-Wright Corp. President Guy W. Vaughan, has resigned to accept the presidency of Fairchild Engine & Airplane Corp. Fairchild President J. Carlton Ward, Jr., will move up to the now vacant post of chairman of the board of directors.

Richardson, former rear admiral, joined C-W several years ago and generally was assumed to be in line to succeed to the top post when Vaughan retired.

Richardson's new post at Fairchild will free Ward from many company administrative details and enable the latter to devote more time to the NEPA project headed up by Fairchild. He also will be able to be more active in industry-wide matters such as industrial preparedness planning, on which Ward is the aircraft industry's recognized authority and spokesman.

The post of chairman of the board at Fairchild has been vacant since October, 1946, when Sherman M. Fairchild resigned and withdrew from the company's management.

Jones Confirmed

Harold Jones, Los Angeles attorney, was confirmed by the Senate, without opposition, for membership on the Civil Aeronautics Board last week. Sen. John Cooper (R., Ky.) testified in favor of Jones at a committee hearing. Rep. Carl Hinshaw (R., Calif.) sent his endorsement. Reports that Jones was backed by Edwin Pauley, California oilman, proved unfounded. Jones is a Republican.

An aviation enthusiast and private flyer, Jones was a Marine pilot in World War I and in World War II was a Marine observer with the British fleet air camp at Pendleton, Calif.

So far as can be ascertained, he did no work for either airlines or manufacturers in his law firm of Jones, Thompson and Kelly of Pasadena. He served a year on the Los Angeles Chamber of Commerce Aviation Committee in 1941.

On the West Coast he is said to have informed friends last December that if approached he would accept a CAB membership.

UAL's 1947 Deficit Totals $3,774,366

United Air Lines' 18 percent increase in costs during 1947 far outran the carrier's 6.3 percent gain in revenue and resulted in a record net loss of $3,774,366 after tax credits.

But the carrier's management, in its annual report to stockholders, sees 1948 as a year of "improving conditions."

► **Traffic Gains**—The 1947 deficit compared with net income of $1,086,961 in 1946 and came about despite a 14.6 percent gain in revenue passenger mileage and a 67 percent gain in freight and express ton miles. Included in the 1947 loss was a $478,228 deficit incurred by UAL's Mexican subsidiary, Lineas Aereas Mexicanas, S. A. (LAMSA).

Delayed deliveries on DC-6s (United did not get its full fleet of 35 until October) resulted in lower revenues than expected. Grounding of the DC-6s in November was another severe financial blow since the extra fare planes were then averaging about 85 percent load factor on the transcontinental and Hawaiian runs.

► **Costs Soar**—Extent of rising costs and their effect on United's 1947 deficit were presented in detail. Costs of materials and supplies in 1947 showed gains of 16 to 132 percent over 1945.

FAIRCHILD PACK PLANE PROJECTED—Answer to manifold problems of diversified military air cargoes, field unloading and erection of stations looms in the Fairchild C-120 Pack Plane, now under development. The self-contained pack is released from the basic airplane, which then attaches ambulance packs for the return trip. Using the basic C-119 Packet airframe, the C-120 is powered by two Pratt & Whitney 3250 hp. Wasp Major engines, which will give the unloaded plane fighter performance and maneuverability.

Fairchild Contracts New "Pack Plane"

Fairchild Engine and Airplane Co. design project for a detachable "Pack Plane" version of the Packet transport (AVIATION WEEK, Dec. 8, 1947) has been formalized into a contract award for the construction of a prototype designated C-120. The pack consists of a streamlined container with a capacity of 2900 cu. ft. and a gross weight of 9 tons, which is attached to the basic airplane through quick detachable fittings. The airplane itself consists only of wing, empennage, power plants and flight deck.

The utility of the pack, including such diverse functions as communications trailer, portable mess sections, 36-litter aerial ambulance, flying surgical units, renders it ideal for air supply of complete units ready for operation upon disassembly from the airplane. In shuttle service, the C-120 would permit the air delivery of ammunition and supplies and the evacuation of wounded on the return flight.

► **Use C-119 Parts**—Although the C-120 will utilize major assemblies of the C-119, the Pack Plane configuration presents several design problems. Because installation of the pack prevents the use of a nose wheel, a quadricycle landing gear design is required which must be retractable into the engine nacelles. Exhaustive design studies have finally produced a configuration in which the forward landing gear units rotate forward from a position behind the main wheels an extremely difficult mechanical problem. Vision over the nose of the pack necessitates a rotation of the crew nacelle about the airplane horizontal reference line to bring the pilot's line of sight closer to the front of the airplane.

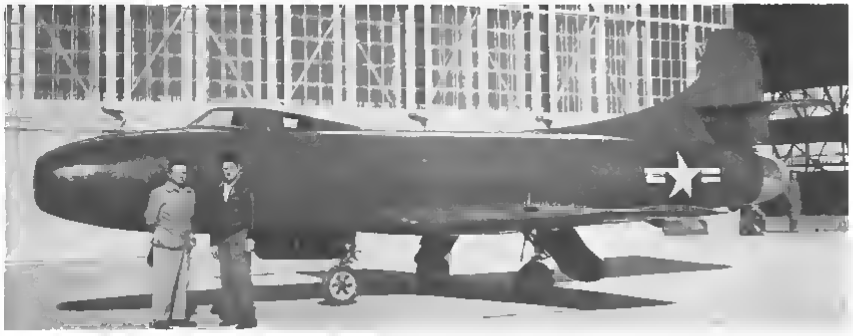
Powered by two Pratt & Whitney R-4360 Wasp Major engines, the airplane without the pack presents an extremely clean design with fighter performance permitting high speed on the return trip when empty and maximum maneuverability for evasive action. Armament will not be carried. The C-120 will be equipped for night and all-weather operations and studies are being made to adapt the Fairchild tractor gear to enable its operation into rough, cleared fields. One possibility is the air dropping of a light bulldozer to clear a flat stretch of ground into which the tractor equipped C-120 could operate.

Although the initial contract is for only one experimental airplane, successful service tests will result in quantity production of the airplane. Observers also see a wide field of commercial utility for the design for air cargo, its detachable feature cutting ground handling time to a minimum. The pack can be mounted on a truck or freight car to permit ground movement to its local destination.

Convair-Liner Damaged

Serious damage to an American Airlines Convair-Liner under training test at Ardmore, Okla., has resulted in a joint investigation by the airline, manufacturer, and CAA into cause of a nose gear drag strut failure.

Early reports indicated that the airplane was brought into an exceptionally hard landing during a simulated low visibility approach. Following collapse of the nose gear the transport suffered extensive damage to wing and engine nacelles.



SKYSTREAK RESUMES TESTS

Douglas D-558 phase I research airplane has resumed high speed flight test program at Muroc Air Force Base, Calif., following engine changes and minor modifications. Douglas test pilot Gene May, left, and NACA research pilot Howard Lilly, right, are shown before latest version. NACA is now flying two Skystreaks at Muroc with the third operated by Navy pilots. Speeds near the 700 mph mark are predicted in this second series of tests. (NACA photo)

Supersonic Tunnel Plan Stalled

Power shortage stymies unitary plan to expand high speed research facilities.

Expansion program of transonic and supersonic wind tunnels is hopelessly stymied by the national power shortage.

For nearly three years research agencies have quietly scoured the country for electric energy sources. Estimates of power requirements of the "unitary for research facility expansion" range as high as 1,500,000 kw. Coordinators of the project have concluded that there simply isn't that much capacity that is not already firmly allocated.

►**Unitary Plan**—The unitary plan consists of a joint Air Force, Navy, NACA and aircraft manufacturing industry program for the construction and operation of the following facilities:

• **National Supersonic Research Center**—This was originally proposed during the war as a new laboratory for NACA primarily for supersonic research. It has been modified into a joint NACA-Air Force-aircraft industry project in which NACA would design, build and operate the facilities; the Air Force would have responsibility for the "housekeeping" of the facility, and aircraft industry engineers would have wind tunnel testing time for specific projects. The center consists of a variety of transonic and supersonic wind tunnels, including several larger than any presently built or building.

• **Wind Tunnel Division, Air Engineering Development Center**—A super "Wright Field," this is an Air Force base designed to accommodate the special requirements of guided missiles, rocket motors and special high-velocity, large-size projects which cannot be handled at Wright Field. The wind tunnel division comprises a group of large transonic and supersonic wind tunnels especially designed for development work on specific designs of aircraft and missiles in both model and full-scale sizes.

One of these tunnels is an huge transonic design with a test section 40 ft high by 40 ft wide, the largest high speed wind tunnel ever designed (world's largest wind tunnel is NACA's 40×80-ft slow speed tunnel at Ames Aeronautical Laboratory, Moffett Field, Calif.). This giant tunnel would require 500,000 hp and cost about $140,000,000.

• **University Wind Tunnels**—A series of supersonic wind tunnels of a standard size and construction suitable for economic use by universities. Designed to perform special contract research work for the services and NACA, the tunnels would also prove useful in the training of student and graduate scientists for eventual transfer to either NSRC or AEDC. Designed by NACA, 16 of these tunnels are planned. Construction and installation will be sponsored by the Navy.

▲ **Additional Tunnels at Present Installations**—In addition to these new projects the plan also includes construction of additional supersonic wind tunnels at the three NACA laboratories, Wright Field, Naval Ordnance Research Laboratory and other installations.

Coordination and final approval of the unitary plan now rests with the Research and Development Board of the Army, which has held the plan without action since last summer. RDB has held repeated conferences with the Interior Department and other government agencies in its search for power but to date has not found sufficient power for any one of these facilities.

No existing facilities have the capacity to meet these requirements if their total output be diverted. Only one project, scheduled for completion in the near future, could handle the job. Grand Coulee in Central Washington, now about 50 percent complete, will have a generating capacity of 1,974,000 kw. Columbia River Basin industries and residential users are contracting for this power as fast as it becomes available.

Only alternative is an entirely new facility at some yet unexploited site. With the Federal Power Commission estimating some 70 to 80 million kw of hydroelectric energy still untapped in U. S. rivers, such a new facility might be built in any one of several areas. Most obvious choice would be among locations already studied by the government. These include the Missouri River Basin, the upper Colorado River, the Arkansas River, and the Savannah, Roanoke and other southeastern rivers.

►**More Delays**—Another delay looms in the three to five years time required for the construction of such a facility including the design and installation of hydroelectric generating equipment.

INDUSTRY OBSERVER

►**Following extensive ground and flight tests, Republic Aviation Corp. decided not to use an adjustable plug to produce a variable area nozzle in the P-84 Thunderjet fighter. Although previous data indicated a large gain in fuel economy through the use of variable area nozzle designs, Republic's experience, together with that of several other manufacturers, indicates that these gains are marginal in actual practice.**

►Lewis A. Rodert, 1946 Robert J. Collier Trophy winner and flight test division chief at the NACA Flight Propulsion Research Laboratory, Cleveland, Ohio, has changed his assignment from "ice" to "fire" and is heading a new NACA subcommittee appointed to study means of combatting the aircraft fire hazard.

►**Wright T-35 turboprop engine of 5000 hp. is now in quantity production, although no specific installations have been made.**

►Texas Engineering & Manufacturing Company, Dallas, will convert four C-47s to 28 passenger airliners under a contract with Avianca Company of Bogota, Colombia. TEMCO recently completed a conversion order for Avianca in which seven planes were involved.

►**Trans-Canada Airlines research engineers recently took a North Star DC-4M pressurized cabin aircraft aloft at Winnipeg when ground temperature was 20 below zero, and found 80 below zero temperature at 32,000 ft. Flight was made to test liquid-cooled Rolls Royce Merlin engines used on DC-4M in such cold temperature. The plane and engines stood up well in test.**

►Production model of new SG Mark VI-D helicopter, designed by American rotary wing engineers Bernard Szyncer and Selma Gottlieb, has been completed in Canada under sponsorship of Intercity Airlines Co. of Montreal. Initial flight tests have been completed. Craft can carry two passengers and 25 lb. of baggage in addition to pilot for range of 120 miles. With pilot and one passenger, range is 300 miles. Engine is 165-hp. Franklin. Design shows influence of Sikorsky arrangements.

►**Seaboard and Western, international cargo operator, is negotiating a deal under which the carrier may be loaned some Boeing C-97 Stratofreighters to do contract work for MATS.**

►British South American Airways completed 1000 Atlantic crossings recently after two years of operation. During the first year, 270 crossings were completed by BSAA.

►**Rigid attachment of TG-180 turbojet engine in Douglas D-558-I Skystreak is being watched closely by aircraft designers for signs of fatigue failure, which Douglas engineers are confident will not occur. Dr. Milton Clauser, Douglas El Segundo engineer, points out that the high frequency and low amplitude of jet engine vibrations are not expected to reach fatigue limits of the magnesium monocoque structure to which the engine is attached. He adds, however, that the Westinghouse 24C engine in the D-558-II Skyrocket is flexibly mounted.**

►Change in design direction in gas turbine discs is indicated by NACA engineers whose studies of the rim cracking problem reveal that the use of discs consisting of a central region of carbon steel and a rim region of high-temperature alloy (present practice) can result in residual tensile stresses at the rim as a result of the lower coefficient of expansion of the high temperature alloy. These stresses tend to aggravate the rim cracking problem.

►**Northwest Airlines will have water injection equipment installed on all its Martin 2-0-2 transports by July 1. This will permit raising the maximum takeoff gross weight from 39,100 lb. to 39,900 lb.**

►Jet engine designers, while acutely aware of the need for higher turbine inlet temperatures, are directing increasing attention to various cooling methods to avoid the use of strategically critical materials such as cobalt and titanium. While these and numerous other materials would aid the use of higher operating temperatures, both the Air Force and Naval aviation are pointing emphasis away from such materials due to the danger of their supply being sharply curtailed in the midst of a violent expansion of turbine production using such alloys.

►**Republic Aviation Corp. engineers may have solved the problem of accommodating minor production engine thrust variations through the use of small inserts which may be installed in the tailpipe nozzle wall between inner and outer skins. Because the nozzle area must be contracted slightly to suit turbojet engines which have less than rated thrust, service personnel normally saw off small portions of the nozzle. The new plugs are simple to install, may be made any desired size and cost practically nothing.**

Overseas Tourist Travel Gaining, TWA Reports

Heaviest trans-Atlantic air tourist business in history is already assured for the 1948 season, according to TWA traffic officials.

TWA by mid-March had reserved seats for 1064 trans-Atlantic roundtrips covering 59 tours arranged by travel agents in the U. S., Canada and Mexico. The tours begin this month and extend through September.

Normally, TWA's heaviest international air travel is not booked until April, May and June for tours to be made in July and August. At this time last year, TWA reported only a fourth as much trans-Atlantic tourist business.

AVIATION CALENDAR

Mar 30—ICAO personnel licensing division, Montreal.

Mar 30-Apr 1—Air Transport Association engineering and maintenance conference, Continental Hotel, Kansas City.

Mar 31—Society of Automotive Engineers, metropolitan section, aeronautic panel meeting on Cabin Supercharging for Fighter Aircraft, New York City.

Apr 1-2—American Institute of Electrical Engineers, Des Moines.

Apr 4-8—American Association of Airport Executives, Congress Hotel, Chicago.

Apr 5-8—National Association of Corrosion Engineers, Hotel Jefferson, St. Louis, Mo.

Apr 7-9—Midwest power conference, Sheraton Hotel, Chicago.

Apr 13-14-15—California Aviation Conference sponsored by Los Angeles, San Francisco and San Diego Chambers of Commerce, Los Angeles.

Apr 17-18—Southern States Air Carnival, Montgomery, Ala.

Apr 17-24—Northwest aviation exposition, Minneapolis auditorium, Minneapolis.

Apr 20—ICAO rules of the air and air traffic control division, Montreal.

Apr 20-21—Second Annual Third-Regional Aviation Conference, Minneapolis Auditorium.

Apr 22-23—AIA personal aircraft council meeting, Dallas.

Apr 22-24—Fourth annual forum, American Helicopter Society, Philadelphia.

Apr 27—ICAO facilitation division, Europe.

Apr 28-30—American Institute of Electrical Engineers northeastern district meeting, New Haven, Conn.

May 4—ICAO North-Atlantic regional meeting, Paris.

May 12-15—Aviation Writers Association 10th Annual Convention, New York City.

May 17—ICAO facilitation division, Geneva.

May 18-20—AIA board of governors meeting, Williamsburg, Va.

May 19—All Commerce Day at Miami, part of World Trade Week observance.

May 20—ICAO European-Mediterranean regional meeting, Paris.

June 1—ICAO second assembly, Palais Des National, Geneva, Switzerland.

June 1-6—Second annual all woman air show, Miami.

June 14-15—Airlines Medical Directors Association annual meeting, Royal York Hotel, Toronto.

June 15-17—Airport management conference, College Station, Tex.

June 15-18—13th annual meeting, Aero Medical Association, Royal York Hotel, Toronto.

June 17-18—Aviation Distributors and Manufacturers Association, Grand Hotel, Mackinac Island, Mich.

NEWS DIGEST

DOMESTIC

William L Gore, Washington representative of Aerojet Engineering Corp and Marine Corps captain, was awarded Navy s Distinguished Flying Cross for assistance in the Navy s JATO program

Damage to planes at Tinker Field, Oklahoma, by a tornado is estimated at $15,000,000, made up largely of 17 Douglas C 54 transports and two Boeing B 29 bombers overturned and damaged beyond repair Although about 100 airplanes were damaged, the remainder of the 2000 airplanes at the base escaped the twister About one half of the planes were awaiting preparation for storage, the remaining half being base and transient planes

Navy has increased its Lockheed P-80 Shooting Star jet fighter order (AVIATION WEEK, Dec 22, 1947) to 50 to accelerate its jet pilot and ground crew transitional training program Navy purchase is being coordinated by U S Air Force, which is delaying acceptance of Arctic versions to permit delivery of Navy order by the end of summer

Orville Wright left an estate estimated at $1,067,105 according to an appraisal by co-executor Harold S Miller, nephew Bulk of the estate goes to Oberlin College, Ohio Berea College, Kentucky and to nieces and nephews The estate includes $852 322 in stocks and bonds, none of which is in aviation concerns, $49 220 in U S bonds, $93,325 in real estate and $93 312 in cash

FINANCIAL

General Motors is reliably reported to be readying for registration the sale of its 29 percent interest in North American Aviation Inc This would be in line with GM s policy of divesting itself of interests in which it does not have complete ownership

United States Plywood Corp. has sold $4,000,000 of 15 year 3¼ percent debentures to six insurance companies Proceeds will bolster working capital in anticipation of larger volume of business Net profits for nine months ended Jan 31, 1948 amounted to $5 889,500 compared to $4 147 700 for same period of preceding fiscal year

Westinghouse Electric Corp's net income for 1947 was $48 806 417 or $3 58 per share on sales totaling $703,-154,334 New orders in 1947 amounted to $849 930,945 and backlog at end of year totaled $685 340 339

Minneapolis-Honeywell Regulator Co reports net earnings of $6,693 509 for 1947 on sales amounting to $60,-596 021 Net income in 1946 was $5,-119,143 on sales totaling $45,940,081

Western Air Lines' stockholders report shows that mail rate gains and sale of its Denver route boosted Consolidated earned surplus to $1,020,266 as of Dec 31 and raised the company's book value per share from $6 32 to $8 21 after deduction of operating losses exceeding $945,000

FOREIGN

Great Britain and Cuba signed a bilateral air agreement granting reciprocal air rights for commercial aircraft flying between the two countries This is the first foreign air agreement signed by Cuba

Trans-Canada Airlines will inaugurate Canada-Bermuda air service May 1 using 40-passenger DC-4M transports The five-hour flights will start initially on a weekly basis on week-ends

LETTERS

Goodyear Reports on Gear

To the Editor

In your Feb 2 issue you have helped us a great deal with your editorial references to our Cross wind Landing Wheels Such statements are very encouraging and I can assure you that all of us here at Goodyear have great hopes and faith that the development is a major contribution to aviation

We are putting many thousands of dollars and many hours into its development and test We are now in a position where we have CAA approval on Stinson and it is expected any moment for Cessna Progress to some who do not know the whole story may seem slow but development and refinement of the product takes time and we want to be sure that this product is as highly developed as possible before we put it into production

As you probably know, our original gear developed for CAA a year ago was steel and only a working model There was much refinement necessary and engineering study to perfect this one size alone into light weight materials and then to test to be sure they were strong enough

Further we found that the gear did not allow an airplane to be pushed backward due to the angle of the kingpin in the wheels It worked perfectly moving forward and in all flying positions However, as mechanics did run into difficulty in storing the plane, we felt it was not a marketable product and much of the time during past few months has been spent on engineering and test to eliminate this problem It was our desire that there be absolutely no controls or connections between this gear and the pilot

We now have refined the gear where it can be pushed backward with no trouble whatsoever and at the same time it has retained all of its excellent qualities of easter ing when the airplane is going forward

We have released a fair quantity of these wheels for production and through the help of both Stinson and Cessna hope to have them in the public's hands within the next four or five months . . .

Within the next week we plan to fly a DC-3 with a Cross wind Gear installed, under a contract we received from the CAA This should be of great interest,

We are also appreciative of the way AVIATION WEEK handled the first Goodyear Trophy Race at the National Air Races last year We have received many more applications for specifications this year and it should be even bigger and better this year than last

R W RICHARDSON, Manager
Aviation Products Division
Goodyear Tire & Rubber Co Inc

Navion's Improvements

To the Editor

We here at Ryan were interested in your editorial, "Lightplanes Looking Up," Feb 2, because we are producing one of the few really postwar planes

Certainly you can't cover in detail the steps being taken by all manufacturers so I know you will not interpret this as a squawk on our part I did notice you mentioned the Beech Bonanza and Stinson as leading in reduction of noise In so far as cabin noise is concerned, Ryan has made very definite progress in the 1948 model, as anyone who has flown this model, after piloting one of the North American jobs, will tell you

Elsewhere, you state the Ryan Navion is little changed except for improved appearance and interior styling Quite apart from the external and interior styling which has definitely improved the plane, Ryan has taken some important steps in the direction of safety and comfort

Principal improvement concerning safety has been the reserve auxiliary electric fuel pump, in addition to the engine driven pump which has been provided for the Ryan model

In addition to the general styling and reduction in noise level Ryan has provided a greatly improved ventilation system Range has been increased 50 percent by installation of the optional 20-gal auxiliary fuel tank and certain refinements for better propeller operation have been incorporated

One reason, perhaps that the Ryan model has been 'little changed ' as you say, is because in our opinion the airplane in its basic design and structure is of extremely sound engineering and though we will over a period of time continue to add improvements for safety, comfort, convenience and utility, we do not envision any major change

I think any honest reporter will have to agree with our belief that for ease of flying, safety, stability, rugged metal construction, roominess and comfort short field performance visibility and cargo utility—and the wonderful combination of all these things—no airplane in the four class market today exceeds the Navion

WILLIAM WAGNER, Public Relations Manager
Ryan Aeronautical Co
San Diego Calif

Douglas Cites Declining Backlog In Reporting Loss of $2,140,579

Value of unfulfilled contracts drops $62,600,000 in year, with one-third of remainder representing completed but undelivered work.

By SCHOLER BANGS

Although still dominant in the fraternity of airframe builders, Donald Douglas gave his company's stockholders a bleak report of declining backlog and working capital in citing a 1947 net loss of $2,140,579.

The latter item was in contrast with Douglas Aircraft's showing of a net income of $2,200,000 at the close of 1946.

A backlog which stood at $211,000,000 in January 1947 had dropped to $148,400,000 a year later.

At the close of last year Douglas working capital stood at $55,500,000 and showed a shrinkage of $3,000,000 during the year.

That the company's net loss was as little as stated could be attributed to Federal income tax credits. Without this the deficit would have been $14,780,579.

► **Backlog No Guide**—Dourly citing the layoff of 10,000 workers in 1947, to an employment total of 16,200 at the end of the year, Douglas cautioned stockholders that the January 1948 backlog of $148,400 could not be taken as indication of the company's productive activity for 1948. He said that at least one-third of the backlog value represented work already completed on airplanes not yet delivered, military and commercial.

The aircraft president made it appear that the outlook for his company will be dark if new military orders do not ensue. Commercial production, he said, is hampered by depletion of the working capital, the purchasing power, of airlines, by Government sales of surplus aircraft, freezing of funds of potential foreign buyers, the increased capacities of new transports, and airline estimates that transports such as the DC-6 will show a 10-year depreciation period rather than seven years as previously contemplated.

Douglas said that while considerable preliminary engineering has been accomplished on the proposed DC-9 twin-engine transport, the airplane has not yet been released for production. Too, he has little anticipation that the Model 1015 "Cloudster" light transport will go into production.

► **1947 Deliveries**—During 1947 Douglas delivered 361 planes representing a total airframe weight, including spares, of 10,468,000 lb. Heaviest deliveries were to the Navy, which received 234 AD-1 attack bombers, eight XBT2D scout bombers, and two D-558 Skystreak research planes. Two unidentified aircraft were listed as delivered, without mention of whether they went to the Army or Navy. One may be considered to have been the D-558-2 "Skyrocket."

Douglas reported a minimum of Air Force deliveries: eight C-74s and the DC-6 Presidential plane "Independence" and said that with the exception of the latter plane Army had placed no orders with the company since the end of the war nearly three years ago. The C-74s delivered were involved in a contract placed prior to the end of the war.

During the past year airlines took 93 DC-6 transports and 13 DC-4 models.

The company also engaged in limited commercial modification business, and delivered 39 modified C-54s and 10 modified C-47s.

"Satisfactory" pick-up was commercial spare parts business amounting during the year to some $18,000,000, or about 20 percent of the company's total commercial activity. The size of this figure also pointed up the weak spot in the Douglas sales picture that the president emphasized: surplus sales of Douglas planes. He stated that 90 percent of all surplus planes sold for commercial purposes were originally built by his company.

Lear Gets USAF Electropilot Contract

Lear, Inc. has received a service quantity contract for its C-2 Electropilot from USAF after successfully completing its initial experimental contract.

The company hopes for a volume production order of automatic pilots to bolster its $1,680,000 backlog of orders reported Dec. 31, 1947.

Lear's new aircraft radio finder, which was developed last year, has been put into production and is in use with in-

WESTINGHOUSE HITS 500

The 500th jet engine recently came off the assembly line at Westinghouse's aviation gas turbine division plant at South Philadelphia, Pa. This apparently is total production to date for both the 19XB and 24C units as engine shown is identified as for the McDonnell Banshee, which is powered by two 24Cs and has not yet been produced in sufficient quantity to warrant that amount of engine production. Receiving the engine from division manager William B. Anderson is Bureau of Aeronautics representative Cmdr. J. B. Meaking.

loss of $391,611 for 1947 is attributed to the shifting market in home radio sets which the company has discontinued making. Sales for the year amounted to $6,576,334 or an increase of $1,296,012 over 1946.

Current assets, as of Dec. 31, 1947, were $3,557,065 and current liabilities totaled $841,717, resulting in a net working capital of $2,715,348—a ratio of current assets to current liabilities of 4.2 to 1.

A loan negotiated in 1946 from the Reconstruction Finance Corporation was reduced during 1947 from $1,000,000 to $241,238. Inventories at the close of the fiscal year totaled $1,183,984, consisting of raw materials of $39,526 and finished parts and work in process of $1,114,458.

Refund of $43,500 to the government under renegotiation of 1945 sales, together with the complete settlement of all terminated war contracts, brought Lear's wartime relations with the government to a close.

Grumman Reports Net of $2,291,120

With a net income of $2,291,120, Grumman Aircraft & Engineering Corp. was one of the few aircraft manufacturers which realized a profit in 1947. More than 80 percent of its business was attributed to Naval production.

An order for the XF9F-2 Panther jet fighter, still undergoing flight tests, will supplement its current output of reciprocating-powered F8F "Bearcats" which will continue to be produced until the new jet fighters are ready for carrier operation and are available in sufficient quantity, Grumman's annual report states.

Grumman feels the XTB3F, experimental torpedo plane, is still in the running for an order, although no procurement of this type of craft was made by Navy in '47. Grumman reports that a modified version of the torpedo plane for "future procurement is a possibility."

► **Commercial Outlook**—General outlook in the commercial plane market was darkened by the diminishing sales volume during the past year. Rate of manufacture of the Mallard and the Widgeon has been curtailed and output will be gauged to meet current sales orders.

Sales of its aluminum alloy canoes, dinghys, and truck bodies, which make up about 5 percent of Grumman's business, also fell below the anticipated volume. Company reported, however, that to date popularity of its truck bodies has resulted in the delivery of approximately 1000 such units.

Gross sales for 1947 amounted to $24,241,247, or an 11 percent increase over 1941, latest prewar year.

Number of shares of company stock outstanding was reduced to 500,000 shares in May, 1947 through purchase of 8060 shares by the company in open market.

As of Dec. 31, 1947, Grumman stock was distributed to 2300 stockholders. Dividends paid totalled $3 per share.

West Coast Labor Story Hinges on National Policy

West Coast's labor situation remains in a state of flux, with major interest centering upon the course to be pursued nationally by CIO's United Auto Workers.

UAW has won at Ryan Aeronautical, in an election that gave the entrenched UAW local 505 votes to 81 cast for International Assn. of Machinists.

New contract negotiations at Ryan may not develop until the CIO decides what action is to be taken at Douglas Aircraft, where the company has broken off negotiations by serving a 30-day notice of intent to cancel its contract. Another factor is CIO's determination of a national policy bearing upon aircraft negotiations.

► **Chrysler Demand Key**—The latter cannot be reasonably expected prior to the outcome of results of the UAW demand in the automobile industry, in which Chrysler has been given a UAW proposal of 25 cents per hour increase across the board plus 5 cents for pension benefits.

On the West Coast UAW negotiators in aircraft eye the Chrysler 30 cents demand as a key to their future action, with their own negotiating policy hinging upon the outcome.

Pending a national expression on aircraft policies UAW probably will engage in a sparring match with Douglas, and at the same time exert all possible pressure to obtain a new election at Consolidated Vultee. Latest word is that National Labor Relations Board still is considering CIO protests aimed at Convair election results, which showed Convair's IAM union a victor over UAW by 23 votes.

Aircraft Industry Studies Spare Parts Production

New techniques in the provisioning of aircraft spare parts for Air Force and Navy are undergoing close scrutiny of manufacturers.

Provisioning problems of the last war will be a basis for recommendations due to come from a newly created Western District spare parts subcommittee of Aircraft Industries Association. Close attention will be given to relative merits of field and factory storage of spares which, during a war, reach voluminous quantities.

Heading the subcommittee is J. O. Langen, Lockheed military spares group. Other members are William H. Hough, sales and contract supervisor, Douglas Aircraft Co., El Segundo Division, and Ralph Maxwell, North American Aviation. The subcommittee will report to a parent spare parts committee headed by Harold B. Kohr, Boeing spare parts manager.

Lightplane Exports Total 43 for February

Eleven personal aircraft companies exported 43 aircraft valued at $219,471 for the month of February, it was announced by the Aircraft Industries Association. The totals represent 10 percent of production and 13.1 percent of dollar values for these companies, as compared with 37 planes, or eight percent of all production, valued at $169,117 for the previous month, when dollar value was nine percent of the value of total output.

Greatest importer was Brazil, which received 11 aircraft valued at $55,323. Brazil also lead January importers, receiving 13 aircraft valued at $62,423 for that month.

Mexico remained second largest importer, with seven aircraft valued at $41,607. Canada and Switzerland accounted for four aircraft, while South Africa took three.

India, Chile and Cuba received two, and Argentina, Colombia, France, French West Africa, French Equatorial Africa, Italy, Morocco and Uruguay one plane each.

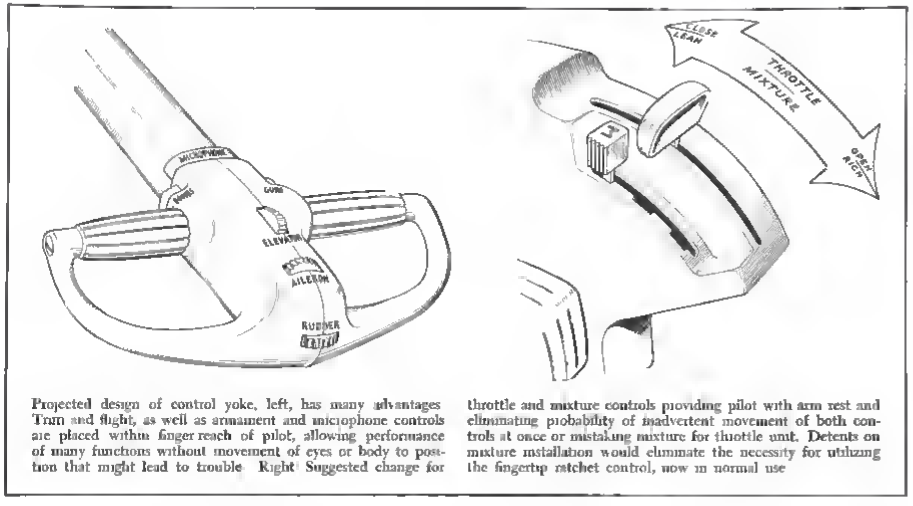
Companies reporting to AIA were: Aeronca, Beech, Bellanca, Cessna, Engineering and Research, Fairchild, Luscombe, Piper, Ryan, Stinson and TEMCO.

Boeing Union Rejects Company Wage Proposal

Aeronautical Mechanics Union at Seattle, Wash., has rejected a 15-cents-an-hour wage increase offered by Boeing Airplane Co. "on the grounds that it is inadequate," according to Harold J. Gibson, district president of the union.

Instead, the membership voted overwhelmingly to submit the company's new contract proposal to arbitration. Main items in dispute, in addition to wages, are seniority and holidays. The union contends the company's new contract would abolish the seniority system.

Early last year the union voted to strike rather than accept the contract then proposed by the company.



Projected design of control yoke, left, has many advantages Trim and flight, as well as armament and microphone controls are placed within finger reach of pilot, allowing performance of many functions without movement of eyes or body to position that might lead to trouble Right Suggested change for throttle and mixture controls providing pilot with arm rest and eliminating probability of inadvertent movement of both controls at once or mistaking mixture for throttle unit. Detents on mixture installation would eliminate the necessity for utilizing the fingertip ratchet control, now in normal use

Cockpit Confusion . . . A Challenge

Simplification of pilot's job by designing coordinated control groupings seen as vital factor in goal to eliminate crashes.

By LT. COMDR. GEORGE W. HOOVER, USN*

Commercial airliners flying at super speeds—between continents in a few hours—is the dream of many future-minded aviation executives Is such flight probable? Yes, but not until aircraft, as we know them today, flying at a fraction of sonic speed, are made much safer.

Everywhere people are saying, "What causes these crashes?" Newspaper headlines too frequently appear like this "PLANE CRASHES, BURNS – 35 DEAD" And the story may continue "Local airline Super Liner returning to home field strikes high-tension lines while making an approach during heavy snow storm. Pilot Jones reported everything going well just before the accident occurred The finding of the Board of Inquiry is that the pilot failed to judge correctly his altitude and distance A sudden attempted pull up indicated that the obstruction lights were seen to late for craft to clear the lines. Reason for the crash Pilot error"

This is a good analysis But, the big question is Why did the pilot misjudge his altitude and distance?

Crashes brought about by the pilot can be put into three causative categories

▶ **Physical Defect**—This can only be avoided through frequent careful examinations

▶ **Failure to Observe Regulations**—Strict disciplinary action tends to decrease the percentage of accidents from this cause, and careful screening should eliminate irresponsible pilots

▶ **Mistakes**—Accidents so easily attributed to pilot error are those which cannot be pinned down to anything other than a mistake on his part. These crashes may be stated as caused by the carelessness of the pilot The accident is undoubtedly caused by a "mistake" In a true sense this is really the result of pilot error, but the cause of that error and not the pilot's actions should be analyzed

With the excellent training given to pilots today, most of them can cope with almost any situation—without error—if they are not tired mentally or physically

Since pilots are human, it is possible for them to make mistakes It may be assumed that these mistakes will be made at critical times—when mental confusion is greatest Here is where the crash analysis should start. Methods of eliminating cockpit confusion should be found This requires a complete study and correlation of every item confronting the pilot

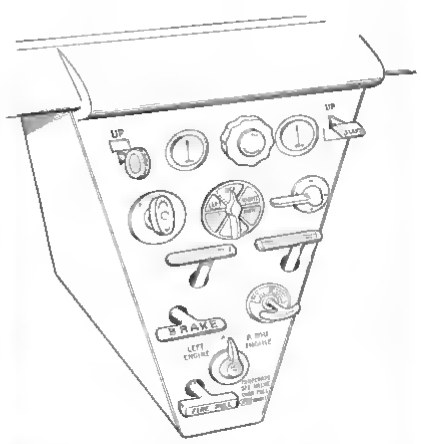
Along with mental fatigue there is muscular fatigue, caused by the multitude of motions required to operate the many controls Motor ability must be studied and methods of eliminating wasted energy must be found

The problem is quite obvious, because the reason for confusion is apparent What can we do to eliminate this element which seems so intangible?

Let us analyze the factors of an ordinary flight, whether it be commercial or military.

Before Flight—Briefing navigation mathematical solution, charts, CAA publications, etc., procedure flight plan, weather clearance; objective recognition, knowledge of runways, facilities, etc., preparation: check of parachute, oxygen equipment, charts, maps, publications and condition of other gear

* Opinions presented herein are the author's and do not necessarily represent those of the Navy Department.



Step toward giving future supersonic plane an instrumentation arrangement relatively confusion free is shown, left, in method successfully developed experimentally. Indicator at top gives pilot attitude information relative to earth. Bank, rate of turn, climb and dive are presented in manner easily assimilated. Middle device is engine inline indicator for accurate index of power plant performance. If, in takeoff, oil pressure goes out, break in solid line of lights will occur under that heading, and will attract pilot's attention instead of requiring constant check of instruments. At bottom is automatic position plotter master-minded by computer. Pinpoint of light moves across map, giving immediate indication of position in relation to map. Sketch at right shows design change for console in Navy JRB aircraft with controls moved to more strategic positions. Controls for wheels and flaps have been separated and given shapes indicative of function (small wheel and miniature airfoil).

Then, prior to takeoff stowage of gear, adjustment of seat, belt and rudder pedals, removal of control locks, radio phone connection, check frequencies, mike, radio compass, etc., instruments set altimeter (barometric and radio), gyros, and clock, turn up engine, check magnetos, oil pressure and temperature, fuel gages, rpm, manifold pressure, mixture, supercharger, pitch setting, cowl flap position, and cylinder head temperature, miscellaneous set trim tabs, check flap position tail wheel, oxygen supply or cabin pressure, and electric and emergency switches.

And for takeoff check for clearance, runway traffic pattern, look for taxi signalman, watch for other planes, taxi into position, lock tail wheel, observe takeoff manifold, release brakes, and, finally, into the air.

Then, throttle back, set pitch, wheels up, check trim tabs, check cowl flaps and cylinder head temperature. Follow pattern, check compass, check time set for cruise.

► **In Flight**—A continuous check of all instruments is necessary, especially altimeter, airspeed, and heading. If on dead reckoning the time must also be observed as well as frequent checking on the navigation board or charts. Weather reports are checked enroute.

► **Landing**—Clearance, wheels down, pitch adjustment, fuel tank shift, mixture adjustment, trim tabs, check engine gages, flaps, communicate with tower, final turn, look for obstacles, check air speed, wheels on, then taxi down the runway.

Most pilots will say that all this is routine. That's true, but too complex a routine to never make a mistake.

Each item mentioned requires some mental effort, contributing some fatigue. If we add the nervous strain of an emergency condition the fatigue becomes greater. And if we add bad weather conditions requiring flight on instruments over a period of time the fatigue rises almost to a point of exhaustion.

A crash generally occurs not because of one incident but rather from a series of conditions which coincide at a crucial instant to bring about the accident. For example:

An airplane, making a landing in a short field which had one runway lined with trees, stalled because pilot was busy opening his hood and lowering the flaps. It had been necessary to make a slow power approach with narrow margin of speed above stalling. The pilot was required to shift hands as well as remove his left hand from the throttle, with the result that the craft's attitude reached a critical condition almost without warning.

He felt the mushing effect before the stall actually got to the point of whipping, immediately applied full throttle (even bending the throttle arm) and nosed the ship over. The plane was slowly moving to the left, and to line it up with the field, he banked slightly to the right.

Recovery was accomplished but at this instant a blast of slipstream from a plane which had just taken off ahead, caught the subject craft, causing the right wing to dip farther, and being very low, to strike the ground, turning the ship 90 deg. to the runway. Realizing he was heading for the trees the pilot cut the switch, pulled hard back on the stick and struck the trees as flatly as possible. Fortunately, only minor injuries were sustained and the craft damaged only superficially. (The trees were saplings.)

In each phase, recovery was made from the critical position. If the slipstream from the other plane hadn't caused the wing to strike the ground a safe recovery would have been made. Even with this incident, if the trees hadn't been on the edge of the runway a safe recovery would have been ac-

complished, according to observers

A combination of conditions brought on the crash, but wasn't the real cause The plane reaching a stalled condition started this series of events This could be called pilot error, but actual cause of the stall can be laid to the pilot's confusion from having too many things to do at a critical time Either the flap handle or the hood control, or both were in the wrong location If they had been adjacent to the throttle to obviate shifting of hands this crash might not have occurred

Most crashes occur during adverse weather conditions—a fairly good indication that mistakes are more frequently made when the pilot is working at nearly full capacity The mistakes are the result of confusion—brought about by the multitude of indications which the pilot must assimilate, compute an answer, then move his controls accordingly The longer it takes him to hunt for the indications the longer it will take to move the controls properly

Misreading the altimeter, confusing a heading with cylinder head temperature, shifting to an empty tank, mis calculating fuel consumption, failing to set trim tabs and many many more such errors lead to accidents When you're confused in the air you can't pull off the road to reorient yourself A mistake—if not corrected almost immediately—may prove fatal

The only way to avoid the usual crash is to eliminate pilot confusion And this can only be done by making the cockpit a completely efficient "office"

Let's take a look at this office and see what can be done Cockpits have been generally arranged to provide space for the many controls and instruments required In many instances, sequence of operation are neglected in order to locate controls in spaces large enough for them Such arrangement requires constant shifting of the pilot's eyes and hands which at critical times can bring disaster Proper correlation of controls is imperative to create a really efficient cockpit

Here is an outline of a method proved successful in correlating controls and instruments

• 1 Grouping of related elements within the cockpit according to function By this we mean grouping all controls and instruments for the operation of the engine into one group called the power group In some planes this group would consist of throttle, pitch, mixture and blower controls tachometer, manifold, fuel and oil pressure gages cylinder head temperature gages, cowl flap control and oil shutter control The same would apply to the flight group, the radio group etc

• 2 Sub-grouping of Item 1 into separable and inseparable By inseparable grouping we mean such installations as throttle quadrant and engine gage unit Manifold pressure gage and tachometer are considered separable items

• 3 Grouping of related elements within the cockpit according to sequence of operation, and location of these groups with respect to their relative importance By this we mean grouping of items necessary for such operations as takeoff, landing, etc This would combine certain items of the power group and the flight group

• 4 Sub grouping of Item 3 into separable and inseparable groups Again as in Item 2 certain controls cannot be separated from their operational groups

• 5 Grouping and location of inseparable units as determined by Items 2 and 4 By this grouping we establish those items in the cockpit which will be generally located in the same place in all types of craft This also sets the pattern of motion for pilot's arms

• 6 Grouping and location of separable items as determined by Items 2 and 4 This grouping will permit relocation of certain items to conform to the various shapes of different cockpits

Sequence of operation must be considered under each of the various conditions of flight as follows Starting engines warm up taxiing normal takeoff emergency takeoff normal cruise emergency cruise normal landing emergency landing and stopping engines

A further consideration must be made for day and night flight under instrument or contact conditions If the above plan is followed the controls and instruments will generally fall in the most logical place for operation with minimum chance of confusion

There are other ways to reduce confusion in addition to grouping and location Shape of the controls is very important This permits pilot to identify a control instantly by sight or by feel The wheel control should be a miniature wheel flap control shaped like an airfoil section Other controls can follow this same pattern thus decreasing the chance of operating the wrong device

Position of controls and switches is also very important When the wheel control is up the wheels should be up Position of the flap control should correspond to the flap Trim tab controls should rotate about the same axes as the craft All switches should be forward or up for "on" and backward or down for "off" This is a very good supplement to the check-off list

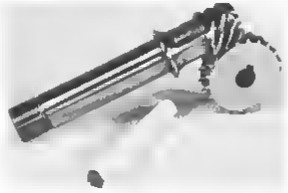
There are approximately 300 items to be manipulated or interpreted by the pilot in the large modern fully equipped plane If these items are grouped and located properly, the pilot will, relatively speaking, have plenty of time to take care of his duties But, triple the speed of the plane and we add still another problem The pilot is then required to make decisions in much less time than he now takes This brings "human reaction time" into the picture A pilot can only operate as fast as his brain can transmit information At very high speeds approaching objects may be overtaken before they are actually perceived

The answer to this as well as the many other problems which will arise with high speed flight, lies in the hands of aircraft research engineers If we are to fly at supersonic speed we must be able to utilize our reflex actions as much as possible Controls must be completely functional and instruments must give the pilot his information directly and without interpretation

Cabin 'Charger Problem Solved by Tiny Gearset

When Douglas engineers developed the special cabin supercharger installation to serve the DC 6, a prime problem was faced Needed was a small gearset strong and efficient enough to pump nearly 1 pt of oil per second at considerably better than 100 psi

The answer was found in the use of "more-teeth-in-contact" cone drives supplied by the Michigan Tool Co



And the gearset pictured here is the one doing the trick Midget size of the set is indicated by the cigaret

Center distance of the gearset is a mere 1⅛ in Heaviest load comes on these gears—their ratio is 3 to 1—when engines are turning over at maximum speed and horsepower at takeoff Under these conditions there is a torque load of about 30 lb in on this small set In terms of power, this means better than 1 hp, with input pinion speed of around 9000 rpm

With lower engine and pinion speed during cruising, there is still a need for better than ¾ hp, torque load being about 30 lb-in at pinion rpm of 6330 Employing this gearset, the pump delivers more than 5¼ gal, of oil per minute at cruising and over 7 gal at takeoff under discharge pressure of 155 psi

Rotor Blade Spoilers Aid Control

USAF starts trials with Landgraf H-2, termed first helicopter to use ailerons as well as spoilers on blades. Stick shake minimized.

By SCHOLER BANGS

Air Force interest in the Landgraf helicopter was emphasized this month when, after a successful hovering flight of the H-2, Wright Field sent the first of a series of technical teams to Los Angeles to supervise an exhaustive series of tests.

The unusual helicopter is reputed to be the only one employing these features: Rotor blade spoilers to effect yaw control while hovering, ailerons to gain cyclic direction control in flight, a tension rod drive system carrying power impulse from a single engine transmission to two rotor hubs and retractable landing gear.

▶ **Start Tests**—Vibration tests of the H-2—on the ground, in hovering attitudes, and at slow-speed translation from hovering to forward flight—are now under way. They will be followed by stability tests and measurement of stick forces throughout a series of center-of-gravity shifts. Next will come full range performance tests. And then, likely in late fall, there will come the strain gage testing of blades and body components in flight.

Fred Landgraf, president of Landgraf Helicopter Co., believes that recent redesign of wood rotor blade inner structures for greater rigidity, together with a more rigid root structure for attachment of blade to rotor hub, will preclude failures which caused destruction of the company helicopter model during previous flight tests.

▶ **About Those Spoilers**—New to the present design is the rotor blade spoiler system designed at Army insistence upon positive yaw control for precision turning of the helicopter, right and left, and backing up in hovering flight. In previous models, without spoilers, the 'copter would swing into the wind while hovering. Body yaw control was not gained until forward flight translation was attained and the fuselage tail fin could exert a turning force following change of flight direction caused by cyclic forces applied through the rotor ailerons.

The spoilers are operated by right and left foot pedals which, via cable attachment, raise or lower rotary following plates in the rotor hubs. In turn, the plate action is followed by a crank unit set within the blade root area and exerting tension upon a cable, carried within the blade, to the spoiler so as to effect an opening action. A centrifugal balance attached to each spoiler closes the device when the opening force is released.

No cyclic action of spoilers is employed. They open and close at uniform rates on the three blades of each rotor assembly, and their operation on right and left rotors is independent and at the demand of the pilot.

The spoiler is a magnesium plate 7-in. long with a chord dimension tapering from 1¾ in. at blade root end to 1 in. toward the blade tip. It is fitted in place approximately 10 in. from the blade tip, and its hinge line is at approximately 40 percent of the blade chord at the mounting station.

Originality of the application of spoilers to helicopter control may be expected to require considerable flight testing, and even dimensional redesign, before final specifications can be written.

In the first hovering flights of the H-2, the present spoilers appeared to be somewhat ineffective at low angles of opening. It was not until they had been opened to 35 deg. of a 60-deg. maximum opening angle that control response began to appear and the helicopter could make hovering turns.

▶ **Fin Flutters**—An adverse testing incident, in which the spoilers set up a serious fuselage tail fin vibration, is not regarded as a point against the system but rather as a demonstration of the extreme care which must be used in effecting disharmony of vibration frequencies of helicopter fixed components with relation to rotors.

In this instance, the tail fin flutter developed as the spoilers were opened, and it reached an amplitude felt strongly in the cockpit. An immediate re-check of H-2 vibration frequencies disclosed that rotor spoiler pulses were in harmony with the frequency of the tail fin, which was three times the rotor rpm., or 1450 per min. (24 per sec.).

Commenting upon the condition, Landgraf told AVIATION WEEK: "It simply is one of the accidents of engineering. If we had attempted to design the tail fin structure to a frequency in harmony with the spoiler pulses we probably would have missed. This incident of our design couldn't have been foreseen. Rather than rework the entire fin structure for these test purposes, we will, instead, install two pounds of lead at the upper extremity of the fin, and by so doing should vary the member's vibration frequency sufficiently to eliminate the flutter."

▶ **Stick-Shake Minimized**—A very favorable aspect of the H-2 is the reduction of control stick shake to an almost negligible minimum. Landgraf attributes this to the small surfaces and low inertia of the ailerons, which alone are cyclic in action while rotor blades maintain constant uniformity of pitch. To date, the only noticeable control stick shake appears on the ground at engine speeds below that required for takeoff.

In much the manner of a constant speed propeller mechanism, the Landgraf 'copter rotors embrace an automatic control which increases blade pitch uniformly as engine power is increased. Thus, in takeoff and flight, the engine throttle governs lift performance while directional control is established by a stick which initiates the cyclic positioning of rotor blade ailerons. Yaw control, as stated previously, is established by "rudder" pedals actuating the rotor blade spoilers.

While overall blade pitch is automatic under normal conditions, an override pitch control lever is provided for the purpose of adjusting the relationship between power and pitch for maximum performance, and to make emergency pitch changes, as in the ease of a flareout in autorotational landing.

▶ **Data to British**—Considerable commercial interest attaches to the present Landgraf tests in that the collected data will serve as a guide for the British combine, Firth Helicopters, Ltd., which contemplates manufacture of a four-place 'copter under a Landgraf-design license. The British builders currently are making experimental rotor blades and will subject them to whirl pit tests before commencing work on a fuselage.

It is noted that the present Landgraf 'copter continues the use of an 85-hp. Pobjoy engine. During his "coffee and [illegible]" period of developing the prototype helicopter, this was the most inexpensive used-engine Landgraf found available, and the fuselage configuration of his craft was, accordingly, developed to embody this particular power plant.

Dimensions of the test helicopter were such that a complete redesign of fuselage would be required to accept a different engine. Fortunately for his testing program, Landgraf has been able to acquire several of these museum piece power plants.

Landgraf 'copter tension rod system, shown exposed, brings power impulse to two hubs

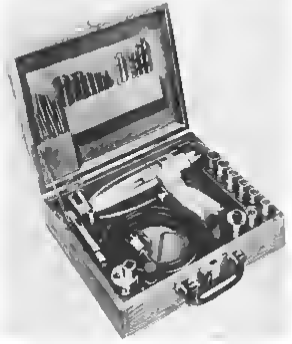
Designer Fred Landgraf examines cyclically controlled aileron and spoiler on rotor blade of his 'copter. By creating extra torque on one side, spoilers turn machine in flight

Here, mechanic demonstrates high degree of flexibility and "give" of tricycle landing gear on Landgraf H-2 helicopter. Gear is designed to withstand vertical power-off landing

NEW AVIATION PRODUCTS

Impact Kit Offered

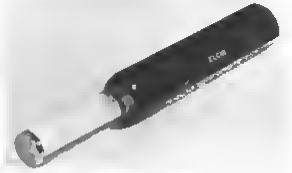
Seen as having a wide range of uses in aviation service jobs, including nut-running, drilling, wire-brushing, and reaming, new kit, featuring 6½ lb electric impact tool, is specifically designed to save time. Produced by **Ingersoll-**



Rand Co., 11 Broadway, New York 4, N. Y., tool is compact, portable, and can be used by maintenance men for many jobs by using proper accessories. Kit is marketed complete or with selected accessories as required. Tool is universal motor driven using a.c.-d.c. current, either 110 or 220v. Automatic impact mechanism delivers 1,900 rotary impacts per minute to job without torque effect to operator.

Sapphire Plug Gage

Metal-tipped sapphire plug gages which resist accidental damage while preserving full advantage of sapphire's wear resistance, are being offered by **Sapphire Products Div., Elgin National Watch Co.**, Aurora, Ill. Metal leader is metallically bonded to gaging member by a new method. Combined with a flexible handle, this tool is designed for highest number of gagings with least operator fatigue. Sizes range from .020 to 1.000-in.

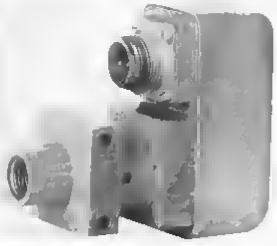


Pressure Pickup Accessory

Developed as positive sealing means in obtaining aerodynamic surface pressures in flight testing, new pressure pickup fitting featuring O-ring seal and quick method of attachment is available from **Stratham Laboratories**, 8222 Beverly Blvd., Los Angeles, Calif. Fitting has circular recess for "O" ring and internal portion is undercut to allow attachment to surface by expansion of Goodrich Rivnut. Installation requires only single hole, countersinking, selection of correct length Rivnut, and drawing fitting into place with Rivnut swaging tool. Fittings are available for standard AN connectors or flexible instrumentation tubing.

Pressure Switch

Designed to meet all applicable AN specifications, new 10 oz. pressure switch made by **Saval Co.**, 1915 E. 51 St., Los Angeles, Calif., has been granted "Yellow Dot" approval by



Wright Field. Operating on oil, Freon gas, or air, applications are in operation of warning lights, dump and by-pass valves, automatic control of hydraulic pumps and in fuel, oil and air conditioning systems. Unit compensates for temperature changes and maintains constant setting from −65 to 165 deg. F. It makes or breaks electric circuits in accordance with preset pressures and can be adjusted to operate through range of 100 to 5,000 psi. Machined from dural bar stock, dimensions are 4⅛ x 3⅜ x 1½.

Vibration Damper

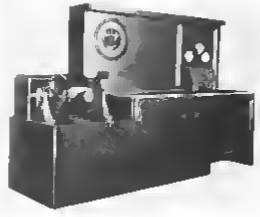
New sealing and vibration damping material, silicone rubber sponge, is announced by **Connecticut Hard Rubber Co.**, 407 East St., New Haven 9, Conn. Featuring wide temperature range, sponge material is claimed to be suitable as extruded sealant for aircraft cockpit applications because of its flexibility and pliability down to −70 deg. F. Material is generally made in extruded shapes but is also obtainable in sheets or in molded form.

Pilot Aid for Takeoff, Landing

Takeoff and landing gross weight calculator offered by **Luttrell & Senior Inc.**, 331 Madison Ave., New York City, is revised to provide for special Civil Air Regulation regarding air temperature accountability, effective Sept. 6, 1947. Pocket size unit, taking into account field altitude, runway length, wind and obstacle height, and distance in accordance with transport category of CAR, is applicable for Douglas DC-4 powered by 2SD13C or R-2000-9 engines. Other units are contemplated for Lockheed Constellation and Douglas DC-6.

New Dynamometer

A 25-hp transmission and absorption dynamometer, designed for testing electric motors, fuel pumps, and gear pumps, is announced by **Electro Mechanical Devices Co.**, 49 Seldon, Detroit, Mich. Known as Model E, unit is completely self contained, with motor and generator set mounted and wired in base to eliminate installation costs. Speed range is 200 to 6,500 rpm. One simple control is used for all tests, and change from motoring to absorption is made automatically when rheostat control increases or decreases in relation to speed of unit tested. Torque is read directly on scale marked in foot pounds. Dimensions: Length 9 ft., height 72 in., depth 3 ft.



Gages Contours

Seen, among other uses, as means for accurate measurement of turbine or compressor master blade patterns and production blade shapes, in either rough, semi-finished, or finished condition, contour transfer gage is offered by **Thompson Products, Inc.**, Cleveland, Ohio. In conjunction with optical comparator, device permits rapid simple setup for checking dimensions, and dial indicator or height gage can readily be used if desired.

Expected World War II Pilot Surplus Used Up, Balfour Says

ATS head cites demand for instructor graduates in forceful rebuttal to Budget Bureau's attack on GI aviation training in schools and colleges.

By ALEXANDER McSURELY

Proposed legislative cures for vet trans flight training difficulties would create two new problems without solving existing ones, Capt. Maxwell W. Balfour, Tulsa, president of Aeronautical Training Society, has advised the House veterans affairs subcommittee on education training and rehabilitation.

A recent recommendation to the subcommittee from the Bureau of the Budget (AVIATION WEEK, March 1) asks Congress to revise current legislation so that veterans training is limited to vocational and occupational advancement except in high schools, colleges and universities.

Balfour points out in a statement to the subcommittee that such action would substitute the opinion of a Veterans Administration counsellor, possibly without any real knowledge of aviation, for the right of the veteran to choose his own course. It would also promote the "gravitation" of GI flight courses away from the small airport schools where most of them are now offered to colleges and universities which are regarded as "unquestionable" by VA.

► **Balfour's Evidence**—The ATS president cites U. S. Department of Labor bulletins comparing employment opportunities in other professions with those of flight training as follows:

- **Physicians**—"The number of physicians available is entirely adequate for the medical needs of peacetime and there is no justification for any substantial increase in the output of medical schools." (1946)
- **Attorneys** — "Profession somewhat overcrowded and likely to become more so." (1947)
- **Mechanical engineers**—"Good immediate prospects. Persons who start training now may be confronted with considerable competition by the time they enter the profession."
- **Metallurgical engineers**, mining engineers, civil engineers, same analysis.
- **Journalism**— Overcrowded.

The Labor Department reports showed that some vocations, such as chemists and grade and high school teachers, offered good employment opportunities. But Balfour points out that reports indicate prospects for employment of veterans who are trained as pilots are as good or better than for many of the other vocations for which veterans are being trained, and which are regarded as "vocational."

► **Bulletin Cited**—Cited is Bulletin 837.2, published (Aug., 1946) by U. S. Department of Labor which forecasts "Employment of pilots is increasing rapidly both with airlines and in other commercial flying services and flying schools. In mid-1945 the total employed was less than 10,000. By 1950 it may reach 35,000 or 40,000 and continue to rise thereafter. Number of pilots in the armed forces and other men with flying experience who are in the market for jobs, will "far exceed the number of jobs for a year or two and probably longer." Bulletin lists as occupations for pilots: Transport flying, flight instruction, demonstrating and selling planes, and CAA inspectors. Balfour points out the omission of pilots hired to fly privately owned aircraft, a group which numbers approximately 25 skilled pilots in Tulsa alone, he reports.

The ATS president argues that the bulletin's prediction of a surplus of pilots from the armed forces has not been fulfilled. Flight schools are not having difficulty in placing their graduates. His own Spartan School of Aeronautics at Tulsa is not able to meet the demand for its graduate flight instructors, and he has similar reports from three other large flight school operators, Embry Riddle, Miami, Fla., Southern Airways, Atlanta, Ga.; and Palo Alto, Calif.

► **Reasons for Failure**—Reasons for the failure of the pilot surplus prediction are listed:

- World War II pilots, in large measure, have passed the age at which they are the best employment prospects and they didn't want to wait for pilot jobs.
- Thousands of military pilots are now in school adding technical and professional skill to their pilot ability.
- They had enough flying and in great numbers have abandoned flying for the vocation they originally wanted.
- Many war trained pilots, mechanics, Link operators and others schooled in aviation work were not qualified for civil aviation work, and needed retraining for civil aviation employment. Relatively few have taken needed refreshers.

Balfour believes that the majority of service-trained pilots who are competing for jobs in civil aviation has already been absorbed. From now on, a new

PIPER FAMILY CRUISER

First photo of the new four place Piper Family Cruiser shows the No. 1 plane recently ferried to the West Coast by Piper sales manager Jake Miller. The 115 hp. Lycoming powered enlargement of last year's three-place Piper Super Cruiser, is priced at $3825 fly-away Lock Haven, Pa., the lowest price yet quoted for a four placer. It has already been certificated, and deliveries to dealers are expected to start in April. Plane is finished in rust and ivory. Landing speed with flaps is 43 mph., and cruising speed at 75 percent power is 110 mph.

crop of younger pilots will be needed to take care of expansion and replacement

A large majority of pilots with commercial certificates are not now competing for pilot jobs because their work as pilots has led them into better positions in or out of aviation, or because they are too old, the ATS president reports. A yearly crop of new and eager young pilots must be provided to take care of the future.

►**Criticise Budget Bureau**—Criticism of the Budget Bureau's statement about the "drop-out" rate in flight training courses is based on the fact that the rate as cited does not indicate that a large number of pilots who terminated courses enrolled at other schools. At Spartan, about half the applicants are graduates of private pilot courses from other schools. These would be listed as "drop-outs" by the Bureau of the Budget.

It is pointed out that the age range for new airline copilots is generally 21 to 29 years, with 23 to 26 preferred. The "pool" of service-trained pilots is rapidly passing out of that range and additional pilot trainees must be provided. Future airline pilots will be drawn from the charter pilots, instructors, pilots of private planes, who are now building experience and skill for airline employment. Only a small minority of working pilots in circulation are employed by the airlines.

Door Controls

Two Sunnyside, Wash., airmen brought an out-of-control plane to a walk-away crash landing recently by substituting doors for rudder, stabilizer, elevators and aileron.

While on a cross-country hop from Walla Walla to Yakima, Lawrence Ziegler, instructor, and Les Howard, student pilot, ran into an area of extreme turbulence. The controls suddenly stopped working and the plane began to nose down. Ziegler opened the door on his side of the plane and helped level the nose. From that point on the men alternated doors, thus achieving a measure of control.

On landing, the plane's tail struck first and was torn off, but the ship bounced to a right-side up stop 100 feet away. The men suffered only minor scratches and bruises. D. O. Allen of Yakima, district CAA inspector, concluded a vacuum, plus the downdraft, caused the controls to lose their effect upon the plane.

Stanley J. Moss Buys Stone Propeller Firm

Stanley J. Moss, wartime industrial engineer at Stinson and later production manager at Aeronca, has purchased the Stone Propeller Manufacturing Company, Wichita, one of the oldest prop makers in America.

Stone Supreme Propellers have been in use since 1912 and the first now is housed at the Smithsonian Institute. The company was founded by the late M. J. Stone in 1912. Moss said new equipment has been installed in the Wichita plant and in addition to manufacturing and reconditioning propellers, the company will produce prefabricated doors and windows, bar stools, counters, office furniture and church pews.

CESSNA ON FLOATS

First picture of the big Cessna Model 190 on Edo Model 3430 floats, shows the triple tail fin arrangement which has been provided for additional directional stability needed with the floats. The four-five place 190, with 220 hp Continental engine, and its sister ship the 195, with 300 hp Jacobs, will be marketed in the floatplane version principally for bush pilot and charter work. The 195, equipped with floats, cruises at more than 130 mph. and will carry 900 lb. of cargo.

Donkey vs. Navion

The "foolproof" airplane hasn't yet been built, but Ryan Aeronautical Co. officials report that their Navion personal-business plane has been successfully demonstrated as "donkey proof."

Salvador Mariscal, coowner of Mansa craft, Latin American distributor for Ryan Navion, tells the story from Acapulco, Mexico, where one of his Navion demonstrators was parked on the field with other private planes.

A herd of wild donkeys—complete with barking dogs, screaming kids and a lot of chaos—came charging down out of the hills. The donkeys ran wild all over the field, crashing directly into many of the planes, breaking wings and struts and ripping fabric covering to shreds.

About this time the "king" donkey took a turn in the direction of our Navion and charged it at a dead run. He crashed into the end of the wing with such force that his back was laid open. The left wheel was lifted 10 inches with the impact.

The only trace of damage was a dent of such minor size that I was able to pound it out quickly with a hammer and piece of wood. However, the poor donkey came out a bad second.

Skyways 99 and 101

Two "skyways" for private flyers along the Pacific Coast from Canada to Mexico, have been redesignated as numbers 99 and 101 to coincide with parallel North-South highway routes.

Designations were changed by CAA from the previous tentatively assigned numbers of 25 and 25W, at the suggestion of the California Aeronautics Commission, according to Mrs. Blanche Noyes, chief of the air marking divisions of CAA.

Each of the skyways is 40 miles wide. In California, Skyway 99 will follow a route from Medford, Ore., to Dunsmuir, Red Bluff, Sacramento, Fresno, Bakersfield, Los Angeles, San Bernardino and Calexico. Skyway 101 will follow the coast from Eureka to San Francisco, Los Angeles and San Diego.

Airport Award

Blue Earth, Minn., airport took first honors among safety awards given to Minnesota airports by the Minnesota Safety Council for the year 1947. Second place honors were taken by Willmar, third by Virginia, and honorable mentions were given Owatonna, Hector, Marshall and Faribault.

BRIEFING FOR DEALERS & DISTRIBUTORS

►**UNFAVORABLE GI SCHOOL ACTION**—Preliminary action by House subcommittee on veterans' rehabilitation and education is almost completely contrary to requests of aviation flight school representatives on three proposed amendments to existing veterans legislation. All of these were reported out to the full House Veterans' Affairs Committee. The subcommittee made favorable recommendations on two amendment bills, H.R. 5848 (introduced by Rep. W. M. Wheeler, D., Ga.) and H.R. 5845 (introduced by Rep. R. T. Ross, R., N.Y.). The third amendment, H.R. 5844 (introduced by Rep. Homer Ramey, R., Ohio) was reported out to the full committee without any subcommittee recommendation. Wheeler's amendment called for eliminating vocational and recreational training, in line with the Budget Bureau recommendation (AVIATION WEEK, Mar. 1) opposing flight training. Ross' amendment called for a system of counseling of veterans on elective courses by VA counsellors. Ramey's amendment called for a subparagraph authorizing aviation or flight training on an elective basis for academic credit toward a degree at a nonprofit institution of higher learning. This amendment would nullify an existing Veterans' Administration order which keeps flight training from being considered as an elective in an academic course at a college or university (AVIATION WEEK, Nov. 17, 1947). The fact that the subcommittee even reported out this proposed amendment, which would benefit aviation training, is the one bright spot in a very dim picture for the future of GI flight training.

►**CALL FOR AVIATION TRAINING**—Executive committee of the National Aviation Trades Association, meeting recently in Washington, voted a resolution pledging support to a national aviation training program to meet the growing demand for national security through air power, according to Beverly Howard, Charleston, S. C., NATA president. Approximately 3000 fixed base operators who are members of 38 state chapters of NATA have been asked to give full support to any national program planned to step up flight training of qualified young men for national defense.

►**NAA CONVENTION**—Minneapolis will be the site of the 1948 convention of the National Aeronautic Association, to be held at the Hotel Radisson, with the Greater Twin Cities NAA chapter as host. Registration will begin Sunday, June 27, with business sessions starting the following day and continuing through June 30.

►**FIVE NEW ADMA MEMBERS**—Aviation Distributors and Manufacturers Association has announced addition of the following new members: Distributors, Standard Parts and Equipment Co., Ft. Worth; Tuscarawas County Aviation, Inc., New Philadelphia, Ohio; Manufacturers, Bendix Products, South Bend, and Scintilla Magneto, Sidney, N. Y., both divisions of Bendix Aviation Corp., and McCauley Corp., Dayton, Ohio.

►**NAVION PRODUCTION CERTIFICATE**—Ryan Aeronautical Co., San Diego, has been awarded CAA Production Certificate No. 603, covering manufacture of the 1948 Ryan Navion. The production certificate is not to be confused with type certificate, which the Navion already had, when it was being made by North American. The new certificate indicates that Ryan has met all qualifications for tooling and production standards, and delegates authority to the company to see that the airplanes meet full CAA requirements.

►**PRACTICAL AIR NAVIGATION**—A new commercial edition of Practical Air Navigation, prepared privately by Thorburn C. Lyon, author of the five previous government-published editions of Civil Aeronautics Bulletin 24, is now being made available to airmen and others interested in navigation. Meanwhile the Government Printing Office reports that the earlier government-published edition is out of print and that orders on hand are being returned to senders with the information that the navigation manual is no longer available from the government and that the new commercial edition may be obtained by addressing Lyon at 8814 Reading Road, Silver Spring, Md. The latest volume includes several chapters not included in previous editions, including a chapter on Light-plane Navigation, a Study Guide for Private Pilots, Electronic Navigation, long range pressure pattern navigation, and other new navigation subjects.

—ALEXANDER McSURELY

FINANCIAL

Study of United's Financing Plan Shows Stress on Future Earnings

Annual report and proxy statement emphasize importance of airmail pay to new money program submitted for stockholders' approval.

Plans for additional financing are revealed by United Air Lines in its annual report for 1947 and accompanying proxy statement.

Stockholders are being asked to approve an increase of the authorized cumulative preferred stock to 300,000 shares from the 94,773 currently outstanding, and the doubling of the authorized common stock to 5,000,000 shares. Currently 1,848,087 shares of common stock are outstanding.

There are no plans for immediate financing. The company is merely seeking to prepare itself so that it may take advantage of favorable market opportunities as they develop. It is clear, however, that the new financing will be in the form of equity capital, through the sale of cumulative preferred or common stock or both.

▶ **Amount Uncertain**—Early in 1947, United raised some $49,500,000 in additional capital to help finance a two-year expansion program extending to Jan. 1, 1949. However, according to Mr. Patterson, "Developments since then have made it advisable that United raise additional equity capital at the earliest opportunity." The reasons for this course are attributed to "operating losses . . . increases in construction and other costs and additional needed capital expenditures."

The significant statement is made that the "amount of new capital which must be raised and the form of financing cannot now be determined since the former will depend in part upon the amount of airmail rate increases that may be granted and the latter upon market conditions." The company is seeking an airmail rate of $2.26 per ton mile for 1947, retroactive to Jan. 1, 1947, and $1.25 per ton mile from Jan. 1, 1948.

This application was filed July 1, 1947 and in view of CAB policy the effective retroactive period may extend only from that date. During 1947, United received a total of $3,870,499 in mail pay. It is difficult to ascertain the ultimate award that may be made by the Board.

Moreover, the timing of any mail award may or may not coincide with favorable market conditions.

▶ **Board Policy Involved**—Of greater importance is the established Board policy in its mail rate decisions against awarding compensation to provide funds for capital expansion of any of the carriers. Premised on this consideration, and coupled with the possibility that the mail pay increase to be received may fall far short of the amount requested, United may not obtain any substantial capital funds from this source.

United also is proposing to reduce the capital of the company by retransferring to surplus the amount of $6,555,583. The implications of this move are very significant and a continuation of the utilization of all possible technical accounting devices to maintain the credit of the company.

It will be recalled that on Dec. 12, 1947 J. W. Newey, vice president, announced that $2,000,000 was being transferred from depreciation reserve to surplus. The stated reason was that the DC4s were found to have a longer life expectancy than first anticipated and normal depreciation reserves would now be adequate to cover the planes' expected life. A more compelling reason, however, and indicated here Dec. 29, 1947, was the desire of the company to maintain dividends on its preferred stock.

This has now been confirmed by Mr. Patterson in the proxy statement.

▶ **Reserve Transfer**—Instead of only $2,000,000 being transferred, however, the full $2,500,000 representing the one-time reserve for postwar adjustments appears to have been shifted to surplus during December of last year. Without this transfer, United would have had a surplus deficit of $48,082 at the 1947 year-end and would have been unable to pay the regular dividend Mar. 1 on its preferred. (AVIATION WEEK, Feb. 2.)

Mr. Patterson now declares that if there is a deficit in earned surplus on June 1, 1948, the preferred dividend will have to be passed. The management is quoted as believing that it is in the interest of the corporation and its stockholders that an unbroken dividend record on the preferred stock be maintained if practicable and reasonable, and that failure to pay the June 1 preferred dividend might handicap equity financing this year. It is for this reason that a transfer from capital to surplus is now being sought.

It is noteworthy that the insurance companies holding the company's debentures and the banks participating in the bank loans have not objected to the terms of the proposed financing.

▶ **1949 Concern**—Unless extraordinary losses ensue, United may be able to meet all commitments as due during 1948 without further financing. However, it is the commitments due in 1949 which are of concern to the company. Such obligations include approximately $9,500,000 representing the balances due on the Boeing Stratocruisers and $5,720,000 for debt retirement. No mention is made of any plans for the replacement of the DC-3 type equipment. Presumably, this is contemplated in other "capital expenditures, to be hereafter initiated as the needs of the corporation's business require."

It appears that despite the current adverse operating picture United has been accumulating cash through depreciation charges.

During 1947, United experienced a net operating loss of $5,819,366. This was reduced by a federal carryback tax credit of $2,045,000, leaving a net loss of $3,774,366 for the year. However, depreciation charges during the year aggregated $7,977,257. Hence, from this source alone, more than $4,200,000 was made available for capital expenditures.

▶ **Depreciation Practice**—Current depreciation charges are believed to be running at the rate of more than $1,000,000 per month. This presumes all DC-6s restored to an "active" status on the company's books. It is known that while the DC-6s were grounded, United was not recording depreciation on this equipment.

The common shareholders have been servicing the interest requirements on the company's debt as well as the preferred dividends paid last year. A total of $527,989 was paid in interest on longterm debt and $319,882 was paid in dividends on the preferred stock during 1947, none of which was earned.

As earnings conditions improve, however, leverage can once again exert a favorable effect on the company's junior equity. This is the big hope for 1948. More than earnings for this year on the common is involved. Without satisfactory earning power demonstrated, the company will find it extremely difficult to embark upon its projected equity capital financing program.

—Selig Altschul

Mexico City Letter:

LAMSA, UAL Subsidiary, Shies From Mexican Merger Proposal

Plane crash spurs government interest in nation's domestic airlines; construction of airports and radio aids is financial problem.

MEXICO, D. F.—The crash of a twin-engined airliner in the central Mexican town of Leon, Guanajuato, last December has set off a series of events that may bring about a general improvement of Mexico's domestic air transport service.

The plane, an Aerovias Panini DC-2, crashed in a fog with the loss of nine lives—pilot, copilot, four passengers and three persons killed when the plane demolished houses in a residential district near the airport.

The Mexican Civil Aviation Department board which investigated the crash found that the plane, though regularly used for air passenger service, was not equipped with adequate instrument flying equipment.

The board delved further into the workings of Panini, as well as the other small lines within Mexico, and decided the five small companies are financially unable to provide equipment and maintenance necessary for safe air travel.

On the basis of its recommendations to the Communications Ministry, Minister Agustin Garcia Lopez, after conferring with President Miguel Aleman, called on representatives of LAMSA, the United Air Lines subsidiary in Mexico, to study the possibility of a merger of some, if not all, of the small domestic lines under LAMSA guidance.

Under the Communications Ministry plan it was learned a new company would have been formed by a merger of Aerovias Panini and Aerovias Reforma with possibly Aerovias Latina Americana, Transportes Aereas Mexicanas and Aeronaves de Mexico, with the United Airlines subsidiary.

LAMSA officials, however, looked with disfavor on the plan. Apparently they felt that the privilege of flying new routes would be outweighed by the problems of coping with the generally run down equipment and the extra personnel they would have acquired in the merger, as well as the unwanted expense entailed in purchase of the lines.

They managed to defer decision, without offending the government, and Feb. 11 the sale of Aerovias Panini to a group of wealthy Mexicans was announced.

The Panini sale seems to have taken LAMSA off the hook, though observers say at best the solution is only a temporary one and that the new owners are in effect throwing good money after bad.

* * *

With the exceptions of LAMSA and Compania Mexicana de Aviacion, the five small lines operate in the red.

And LAMSA says it is just breaking even.

The only three profitable routes in Mexico are flown by CMA, Mexico City to Los Angeles, Mexico City to Merida and Mexico City to Nuevo Laredo, by way of Monterrey.

LAMSA flies through the "heart of Mexico," from the capital to Ciudad Juarez, across the border from El Paso, Tex., and on to Nogales on the Sonora state-Arizona border.

LAMSA hopes to "get a break" some time in the future if the United States grants it permission to continue on from Nogales to Phoenix, and San Diego or Los Angeles, and from San Luis Potosi to San Antonio and Houston. But a company spokesman admitted sadly that the likelihood of such permission being extended is not great, at least for the next couple of years.

* * *

However, industry spokesmen express the hope that the revival of Mexican official interest in the plight of the nation's domestic airlines may bear fruit.

Heretofore, Mexican government participation in domestic aviation has been limited to little more than the granting of route concessions.

Construction of airports and radio navigational aids has been the problem of the various airlines. CMA, which started life as a Pan American Airways subsidiary, and LAMSA, the UAL subsidiary, have been the only two lines financially capable of erecting installations at all comparable to those found in the United States.

The industry long has been crying out against the government's policy, or lack of one.

In addition to having to build their own airports and install and maintain their own radio aids, the airlines say that airmail pay is too low and the aviation gasoline tax onerous.

The airmail pay in Mexico is about one fifth of that of the United States, despite the fact that an airmail stamp is about six times as expensive in this country. Too, they claim, the tax of about 8 cents U. S. per gallon on aviation gas more than compensates for what revenue may be derived from the mail.

Ironically, proceeds from the aviation gas tax go into a highway fund.

Too, the industry is expected to make an effort to use the government's report on the Panini crash for material in its fight for greater measure of governmental aid.

If Mexico needs air passenger and cargo service (and with many parts of the republic unreachable by auto or fast rail service there are few who deny the pressing need) and the airlines can not pay their own way without government assistance, the only course open to Mexican officials is to extend a helping hand.

The Panini Board's report of the financial inability of the small lines to provide sound, safe and economical air travel will be quoted widely in future tiffs between the government and the airlines.

* * *

At present the situation is quiet, the lull between storms, the airlines say.

With Panini under new management, the government presumably is satisfied for the time being.

But now that some attention has been called to the fact the Communications Ministry winked at lack of adequate navigational equipment, presumably the Civil Aviation Department will be compelled to enforce its regulations.

Already cognizant of the financial inability of the small operators to install such costly devices, the government is certainly aware of the possibility of leaving itself open to criticism for not adopting a more generous policy toward the airlines.

It seems that eventually the end result of the loss of nine lives last December will be a general improvement in the efficiency of Mexico's domestic air service. The government has built the airlines' own case.

—William Giandoni

Senate Subcommittee Probe Into Airline Subsidies Planned

Investigation of possible political influence in award of routes by CAB also on agenda of Congressional group headed by Senator Homer Ferguson.

A full-dress investigation of airline subsidies and a scrutiny of possible political influence in the award of routes by the Civil Aeronautics Board are on the agenda of the investigating subcommittee of the Senate Committee on Expenditures in Executive Departments.

The subcommittee, headed by Sen. Homer Ferguson (R., Mich.), has been designated by the Republican leadership to handle this session's quota of top investigations. In this Presidential election year it is expected by informed observers that the quota will be both full and spectacular. The GOP controlled Senate recently, over Democratic opposition, voted the group $125,000 to start off its work. This is in addition to approximately $160,000 made available to the subcommittee from unexpended funds of the full committee.

► **Hughes Probe Recalled**—As chairman of a subcommittee of the now defunct War Investigating Committee, Ferguson was a key figure of last summer's widely-headlined Hughes Aircraft investigation. This touched off the tiff between Howard Hughes and Sen. Owen Brewster (R., Me.) over whether, as Hughes charged, the Maine Senator was dominated by Pan American Airways and had used his public office in an attempt to force merger of Hughes' TWA with PAA and obtain Hughes' support for chosen instrument legislation.

Although its filing date is long past due, a report on the Hughes Aircraft investigation remains entangled in the officially defunct War Investigating Committee because of the inability of members to agree and issue a unanimous report.

► **Meyers Investigation**—Subsequent to the Hughes-Brewster fiasco, Ferguson gained public applause from his direction of the investigation of Brig. Gen. Bennett E. Meyers.

Members of the Ferguson subcommittee set to launch the investigation of airline subsidies: Sen. Irving Ives (R., N. Y.), Sen. John Bricker (R., Ohio), Sen. Edward Thye (R., Minn.), Sen. John McClellan (D., Ark.), Sen. Herbert O'Connor (D., Md.), and Sen. Clyde Hoey (D., N. C.). William Rogers will serve as chief counsel and Francis Flannagan as assistant chief counsel to the group. Rogers and Flannagan both worked on the Hughes Aircraft and Bennett Meyers investigations.

► **Separation of Subsidy**—Most significant repercussion of the planned investigation, from the standpoint of the air transport industry, probably, will be the push it will give to the move in Congress for separation of "subsidy" mail payments to air carriers from "service" payments. The Air Transport Association's executive vice president, Robert Ramspeck, has objected that the earmarking of subsidy payments would furnish surface carriers propaganda ammunition to use against the air transport industry.

Rep. Ed Rees (R., Kans.), chairman of the House Post Office and Civil Service Committee, is strongly in favor of the separation, and there is substantial support for it on his committee. A complete airing of government support to airlines would give the separation proposal sufficient backing to move easily through both houses, Congressional circles believe.

CAB SCHEDULE

Mar. 30—Hearing on British Caribbean Airways, Kingston, Jamaica-Miami route application (Docket 3276.)

Apr. 1—Oral argument in TWA-Hughes Tool Co. investigation (Docket 2796.)

Apr. 5—Oral argument in Alaska Airlines request for retroactive mail rates. (Docket 2021.)

Apr. 5—Hearing on Aerovias Nacionales de Colombia's Bogota-Barranquilla to New York route case. (Docket 3245.)

Apr. 6—Oral argument in air freight rate investigation. (Docket 1705 et al.)

Apr. 14—Hearing on Pan American Airways application to acquire all property of Uraba, Medellin and Central Airways and for transfer of UNCA S certificate. (Docket 3272.)

June 14—Hearing on Capital Airlines (PCA) mail rate case. (Docket 454.)

AEROVIAS BRASIL'S VERSATILE DC-3

Soon to be placed in service on South American routes, this plane is the first of Aerovias Brasil's DC-3s to be adapted to full cargo, full passenger or combination cargo passenger loads by Aerodex, Inc., Miami. The former cargo craft has been equipped with 28 double-duty collapsible chairs which can be folded upright and secured to the fuselage wall. In this position, the chairs become stanchions to which freight or baggage can be made fast. Constructed of chrome plated steel tubing, the chairs were designed and manufactured by Flight Engineering and Equipment Co., Miami. Picture shows six of the double seats secured against the walls of the DC-3.

Senate Aviation Subcommittee Given Safety Recommendations

Technical consultant for Congressional group issues report criticizing CAA, CAB, certificated and uncertificated carriers and pilots.

Detailed and severe censure of CAA and CAB, together with recommendations for extensive new safety regulations governing air transportation, has been placed before the Senate Interstate and Foreign Commerce Subcommittee on Aviation.

A report prepared by Carl Dolan, aeronautical technical consultant to the subcommittee, and made public last week by Sen. Owen Brewster (R., Me.), criticized certificated and uncertificated airlines and their pilots in addition to the government agencies. The study, based on an analysis of about 35 air carrier accidents which occurred in 1946, 1947 and early 1948, already has been attacked by industry quarters as "idealistic and impractical" and in others as an indiscriminate "shotgun" approach to the safety problem.

▶**Pilot Grounding Asked**—Most radical suggestion advanced by Dolan was that all transport pilots who have had major accidents should lose their license automatically. Reinstatement in about one year should come only after a thorough re-screening of these pilots, Dolan declared.

In support of his conclusions, the Senate technical consultant cited the study of an Air Force psychologist who found that pilots involved in an accident were nearly ten times more likely to have another one in the next 30 days than were other flyers. After a year, however, the pilot with one accident was found to be only slightly more likely to have another crash than pilots who had never cracked up before.

▶**ALPA Reaction**—Commenting on the proposal, David L. Behncke, president of the Air Line Pilots Association, described it as "ridiculous in the extreme." He said ALPA's experience conflicts with the conclusion that one accident tends to increase the chance of another crash by the same pilot.

Dolan also criticized pilots, especially those employed by uncertificated lines, who fail to report to CAA when their company has violated regulations. Citing the Burke Air Transport accident at Melbourne, Fla., last July, he declared that pilots should be censured for tacitly condoning dangerous practices.

▶**Uncertificated Lines Hit**—The report noted that operation of poorly maintained equipment and overworking of pilots is prevalent among uncertificated passenger-carrying airlines. It added that CAB should force all passenger carriers to follow the same regulations which apply to certificated scheduled airlines.

Turning to the government agencies, Dolan charged that CAB has been remiss in attending to its safety responsibilities. He said that the Board's regulations are at times so ambiguous they cannot be enforced.

The Senate subcommittee's consultant urged that the CAA administrator and his staff spend more time in the field investigating lax management and shoddy operating procedures.

▶**Proposals Listed**—Among recommendations for increased air transport safety contained in the report:

- Cockpits should be standardized especially with regard to navigation instruments and controls.
- Vision must be improved forward and aft.
- Auxiliary portable radios and recording barographs should be installed in tail assemblies.
- Plane seats should be solidly secured to the structure of the plane so that in the event of a crash they will not tear loose upon impact.
- Devices should be installed by which engines and gas tanks, if on fire, may be dropped while the plane is in flight.
- Helium gas should be used in tires.
- A device should be installed whereby helium may be pumped into empty fuel tanks in order to prevent explosions from accumulated combustible gases.
- Emergency exits should be installed on both top and bottom of the fuselage.
- Only non-combustible fluids should be used for prop de-icing and hydraulic system.
- Emergency gear such as axes, metal cutters, etc., should be made standard equipment required by law.
- War surplus engines should be carefully investigated since the majority of planes involved in recent accidents were equipped with them.
- All passenger planes should be equipped with reversible propellers.
- A thorough study of the metal fatigue limit in all airplanes should be made.
- A master electrical switch or circuit breaker should be installed in each nacelle in addition to the cockpit master switch. This would enable the pilot in an emergency to cut off all electrical connections in each nacelle.
- Nacelle fire walls, vents, flaps and sides should be absolutely air tight when closed. Investigation has disclosed that unless a gas fire is extinguished immediately it is virtually impossible to control.

PAA BAGGAGE LOADER

A mechanical conveyor-belt loader has been made a part of Pan American Airways' streamlined baggage handling system at the carrier's new Miami terminal. A PAA cargo supervisor is shown shifting the baggage from dolly to the conveyor belt which carries it inside the plane's cargo hatch. A three-man team working with the conveyor belt reportedly can handle a complete plane load of baggage in a fraction of the time formerly required by a larger crew.

Branch Answers Attack On Decision

Intimations that CAB's decision in the Middle Atlantic area case may have been affected by the connection of Board Member Harllee Branch's son with the law firm representing Eastern Air Lines have been denied by Branch.

Answering a letter from Sen Styles Bridges (R, N H), chairman of the Senate Appropriations Committee, who asked for an explanation of the allegations, Branch said last week he understood the issue was raised by Colonial Airlines, one of the carriers disappointed by the Middle Atlantic Area opinion. Earlier (AVIATION WEEK, Mar 22) Colonial's president, Sigmund Janas, had issued a public statement attacking CAB for refusing to grant his company a link between New York and Washington, which would have been in competition with Eastern and American.

▶**Colonial Championed**—Janas failed to single out Branch for criticism, and no reference was made to the connection of the Board member's son. But almost coincidentally with Janas' statement, news commentator Drew Pearson, in his column, championed Colonial's case and made direct reference to the employment of Branch's son by Gambrell & White, general counsel for Eastern.

Branch, who submitted his resignation to the President Jan. 19 and is to leave the Board May 1, told Bridges that conflicting interests existed in almost every case coming before CAB. 'But so far as I know this is the first time any question has been raised by an unsuccessful applicant regarding the Board's integrity. I feel very strongly that the persons who are responsible for this unjustified attack are hopeful that they may influence the action of the Board relative to motions for reconsideration of the Middle Atlantic area case."

▶**Other Applicants**—The CAB member pointed out that five applicants other than Colonial had applied for local operations on the Washington-New York route and all were turned down by a majority of the board. He noted, however, that at the same time CAB unanimously approved National Airlines' request for through service to Baltimore, Washington and Richmond on its New York-Miami run and that this additional competition was opposed by Eastern.

Branch said his son was employed by Gambrell & White in 1940 and that he had never participated directly or indirectly in an airline case. Other CAB members were advised of the connection and no objection was made. Branch emphasized that his son left Gambrell & White to form his own law partnership in August 1947, more than five months before the decision in the Middle Atlantic case.

How bulbs are packed in wave-deflecting container is demonstrated by Philip Sperry, general sales manager of Wabash Photolamp division of Sylvania Electric Products.

Flashbulb Now Guarded By Radar-Proof Canister

Discontinuance of air shipment of photo flashbulbs because of danger of ignition from radar waves, has brought forth a special radar-proof container for such lamps.

Work on the wave-deflecting canister was initiated by the Wabash Photolamp division of Sylvania Electric Products after a supply of bulbs was mysteriously flashed at an airfield. Subsequent investigation disclosed that nearly 5 per cent of common photo bulbs will ignite when exposed within 20 yards of S-Band radar waves, and that under certain circumstances the waves will flash the lamps as far away as 80 yards. Waves of the 10 cm. length were found most active in affecting the standard bulbs.

The canister designed by Wabash's Chief Engineer L. T. Anderson is 17 in. high, 12¼ in. in diameter, and weighs 3 lb. It features a lip type cover which, when reinforced with sealing tape, will not open even under the roughest handling.

Ferry Passengers Turn To Air Transportation

Certificated and uncertificated airlines in the Pacific Northwest filled in part of the transportation breach caused by recent cessation of regular ferry service on Puget Sound, Wash., between Seattle and the Kitsap and Olympic peninsulas.

Puget Sound Navigation Co., the surface carrier involved, stopped service when the state refused to grant it increased rates. West Coast Airlines, operating regular DC-3 feeder service in the area on a twice daily schedule between Seattle and Port Angeles, immediately added an extra roundtrip in the morning and another at night when even the regular flights were sold out. Patronage increased from the normal 30 to 35 passengers daily to as many as 100.

Independent Air Services, acting as agents for Aviation Corp. of Seattle, Seattle Air Charter and Pacific American Air Lines, began operations between Seattle and Bremerton with eight roundtrips daily, using DC-3s and C-46s. Air fare for the seven minute trip is $1.25, including tax.

U. S. Flag Carriers Show Loss in 1947

Red ink continued to dominate preliminary financial statements of principal U. S. flag carriers during 1947. But mail pay adjustments when permanent rates are fixed may change the picture.

Aggregate net loss for Pan American Airways, American Overseas Airlines and TWA's international division was $1,273,134 last year despite record traffic and an operating profit of $2,166,309. In 1946, the three carriers reported a combined net loss of $3,740,689 and an operating profit of $7,413,879.

▶**Individual Results**—Pan American listed an estimated consolidated net profit of $2,286,972 and an operating profit of $5,142,892 in 1947, compared with a net profit of $2,572,126 and operating profit of $12,290,676 in 1946. Last year's net by PAA divisions was: Atlantic $1,578,420 profit; Pacific $752,958 profit, Alaskan $36,573 loss, Latin American $640,564 loss, and non-divisional $632,730 profit.

TWA reported $1,791,882 net loss and $1,298,142 operating loss on its international division in 1947 compared with $6,005,958 net loss and $4,902,685 operating loss in 1946. American Overseas showed $1,768,224 net loss and $1,678,441 operating loss in 1947 against $306,857 net loss and $25,888 operating profit in 1946.

▶**Results Not Final**—The preliminary figures are far from indicative of final results which will only be available when CAB fixes final mail rates. TWA's and AOA's showing for 1947 probably will be much improved at that time. Pan American's estimate for 1947, unlike those of AOA and TWA, reflects the amount it expects to receive from mail when final payments are set.

Thus PAA listed its 1947 U. S. mail pay as $22,217,000 based on what it believes its final rate will be. Actually, this amount exceeds the temporary rate by $5,489,000, and had the adjustment not been shown, PAA apparently would have been in the red along with AOA and TWA.

Lochiel, Wilson, Neelands Elected to PCA's Board

Three new members have been elected to the board of directors of Capital Airlines (PCA). They are Raymond G Lochiel, vice president and comptroller, Robert J Wilson, vice president in charge of properties and personnel administration, and Thomas D Neelands, Jr, investment banker

Lochiel has been with PCA in an executive capacity since 1932, while

Lochiel

Wilson

Wilson served as a legal advisor prior to being elected vice president in 1942. Neelands, active in New York and national financial circles since 1923, is president and chairman of the board of Kathlands Development Corp and president of Technical Managers, Inc

Other personnel developments

▪ **American**—Charles T Fisher, Jr, president of the National Bank of Detroit and vice president of the Detroit Board of Trade, has been elected to the board of directors to succeed Walter S McLucas

▪ **Challenger**—Donald A Duff, chairman of the board of directors, has been elected president to succeed George W Snyder, Jr, who resigned to enter the mining business H Lynn Graham, recently appointed secretary-treasurer, was made a director

▪ **California Eastern**—Robert E Caskey has become general sales manager and James B Watriss, assistant sales manager

▪ **Continental**—Robert F Six was named to head the carrier for the 12th consecutive year following the annual stockholders' meeting The board of directors also was reelected without change

▪ **Trans-Canada**—W Gordon Wood has been appointed general traffic manager

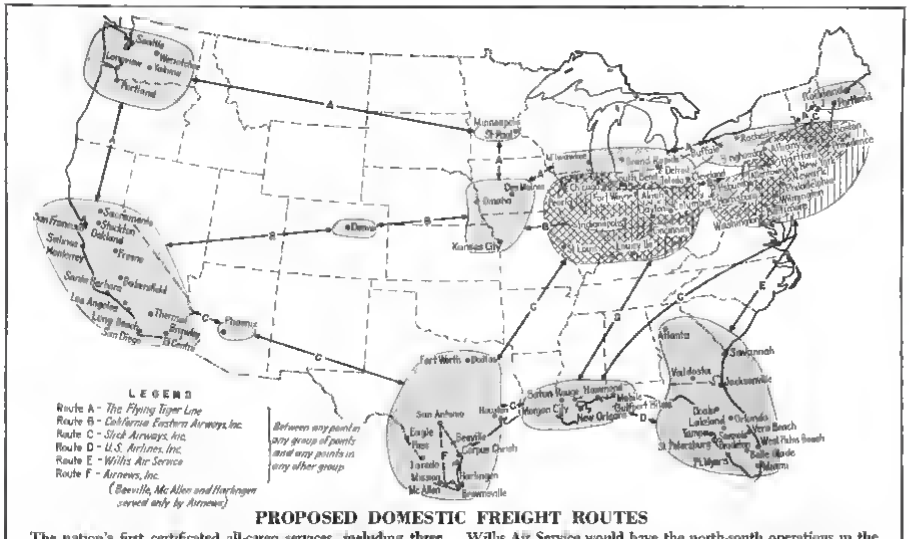
Slick Deficit Totals $444,474 in 1947

Despite continued gains in cargo business throughout the year and its first taste of profits last fall, Slick Airways finished 1947 with a net loss of $444,474.

Last year's deficit represented a sharp improvement over 1946—the first year of operation—when it was $861,259 in the red Keeping its place for the second successive year as the largest carrier of airfreight, Slick flew 21,937,000 revenue ton miles in 1947 against 12,198,000 in 1946

▶ **Costs Soar**—Operating revenues last year aggregated $2,816,222, compared to $1,340,234 in 1946 Operating expenses increased from $2,068,078 in 1946 to $3,261,745 in 1947. Since its incorporation in January, 1946, Slick has spent over $72,000 on its application for a CAB certificate.

Rising costs blighted Slick's hopes of showing a profit in the fourth quarter of last year after being in the black during September and October Deficit for the last three months of 1947 was $48,709.



PROPOSED DOMESTIC FREIGHT ROUTES

The nation's first certificated all-cargo services, including three transcontinental routes and two north-south links, were recommended this month by CAB examiners in their airfreight case report (AVIATION WEEK, Mar 22) As shown on the map the new operations would be conducted according to a modified area-to-area principle Recommended services would connect seven major cargo-producing areas: California, Northwest, North Central, Northeast, Southeast, Texas and Louisiana. The Flying Tiger Line, California Eastern Airways and Slick Airways would conduct the transcontinental operations. U. S. Airlines and Willis Air Service would have the north-south operations in the eastern part of the country, and Airnews, Inc., would have a small system in southern Texas. The arrows and lines on the map merely designate the areas to be served by each carrier and do not indicate all the routes which could be flown by each For instance, The Flying Tiger Line, designated by (A) on the map, was recommended to serve four areas. California, Northwest, North Central and Northeast It would be permitted to fly directly between any point designated for it in any one of the four areas and any point designated in the other regions.

SHORTLINES

▶ **American**—Expects to have 14 DC-6s back in service by the end of the month and hopes to have its full fleet of 50 in operation by May The first six modified DC-6s to be used by American following the grounding last November were returned to service Mar 15

▶ **American Overseas**—Has received CAB permission to substitute Shannon, Ireland, in lieu of Foynes as an intermediate point on its north Atlantic run Carrier also was authorized to serve Bremen-Hamburg and Cologne-Dusseldorf, Germany

▶ **Braniff**—Is installing terrain clearance indicators in all planes

▶ **BOAC**—Effective Apr 15, New York-London service will be increased from five to six roundtrips weekly Montreal-London flights will be boosted from two to three roundtrips weekly at the same time.

▶ **Capital (PCA)**—Plans to inaugurate service into New Orleans and Mobile on Apr 8 Date for institution of service to Atlanta will be announced later

▶ **Eastern**—Will begin service to Wilmington, Del, on Apr 27

▶ **Florida Airways**—States in its annual report that 90 persons are now employed and the 1947 payroll totaled $240,000 Flight equipment is valued at $365,000 and ground equipment at $57,000 Current assets were listed at $285,828, current liabilities $111,710 and total investments $660,836

▶ **KLM**—Intends to continue service to Lydda Airport, near Jerusalem, despite unsettled conditions in Palestine Earlier, TWA had cancelled flights to Palestine after one of its planes reportedly was fired on

▶ **Pan American**—Reports carrying over 1,000,000 letters on eastbound trans Atlantic flights during the week ended Mar 13 Volume was up about 100 percent over same 1947 period Company has been granted CAB permission to suspend service at Washington, D. C., as a coterminal on its north-Atlantic route for one year

▶ **TACA**—Has suspended service indefinitely between Miami and Central America Company officials said business had not been up to expectations on flights to San Salvador Service from New Orleans to Central America, which was recently increased will be continued

▶ **Trans-Canada**—Has received CAB permission to substitute St. John, N B, Canada, for Blissville, N B., as an intermediate point between Halifax Nova Scotia, and Boston

TIMING THE STRATOCRUISER

Boeing Airplane Co. engineers have developed a radio system using the Doppler effect (Aviation Week, Sept 15, 1947) to answer the problem of speed timing at high altitude. The system permits accurate speed checks regardless of altitude, and proves valuable in gauging the high flying Stratocruiser's speed Here a Stratocruiser used in tests flies over the ground station on take off. Portable unit (left) transmits signal to airplane, which doubles frequency and re-transmits it to ground. Ground installation also doubles frequency and phase difference is measured to produce flight speed of plane

O'Connell Nominated For CAB

Washington lawyer, formerly general counsel of Treasury, picked by Truman.

Joseph J O'Connell, Jr, 42-year-old Washington, D C, attorney and former general counsel for the U. S Treasury Department, has been nominated by President Truman to fill the CAB vacancy created when James M Landis failed to receive reappointment as Board chairman Jan 1.

Now a member of the Washington law firm of Gardner, Morrison & Rogers, O'Connell has no experience in the aviation field He practiced law in New York for three years prior to entering government service in 1933 and remained in the government throughout the Roosevelt Administration

▶ **Treasury Aide**—From November, 1933 to February, 1938, he was employed by the Public Works Administration to handle legal problems in connection with the financing and construction of PWA projects He then transferred to the Treasury Department, holding the posts of special assistant to the general counsel and assistant general counsel before being appointed general counsel in May, 1944 He left his Treasury position last summer

Some criticism of the nomination was expected because of O'Connell's lack of aviation background. O'Connell stated frankly that "if aviation experience is a prerequisite for the job, I'm afraid they have the wrong fellow."

Joseph J O'Connell, Jr

▶ **Other Selections**—O'Connell's name was the second to be submitted to the Senate for the Democratic vacancy on CAB In January the Senate Armed Services Committee balked at President Truman's request for special legislation which would permit Maj Gen Laurence S Kuter to become CAB chairman while retaining his Air Force rank and $15,000 annual military pay

SEARCHLIGHT SECTION

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NEW ADVERTISEMENTS received Friday will appear in the issue mailed the following Friday subject to limitation of space available

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COMMERCIAL PILOT. 800 hours C-46, 2200 single engine, age 29, married, reliable, 3 yrs. college Aero. Eng. Desires position flying for company or individual. PW 4042, Aviation Week.

POSITION WANTED—Licensed A & E mechanic, 5 years experience. Commercial pilot, S.E.L., M.E.L., with instrument rating, 500 hours total time. Principal experience on Twin Beech. Desire position as pilot mechanic on single engine aircraft. Veteran, 26 years old, married, Protestant religion. Ralph B. Swartz, 224 South Franklin St., Allentown, Pa. Phone 24643.

AIRPORT MANAGER, thoroughly experienced in operation of large terminal airport, desires more active assignment in field of airport management sales promotion. Aero. Safety Engineer. PW 3228, Aviation Week.

FOR SALE

Grumman Widgeon

Excellent condition, purchased new July 1944, airframe time 1350 hours, left engine 210 hours since overhaul, right engine 210 hours since overhaul, metal propellers. For further details contact S. P. Gillis, Union Oil Company of California, 1134 Commerce Building, Houston, Texas.

Twin Engine D 10-S Beechcraft

Total time engines and aircraft 481.00 since new. Five transfully upholstered reclining chairs. Completely run-prod for instrument and night operation. Dual ADF. Lear UT-6 tentamiliar range receiver, marker beacon receiver. This airplane powered with Pratt & Whitney R 985 AN-4 engines. Excellent condition throughout. Price upon request. PS 4143, Aviation Week.

For immediate sale

one Sri C.A.A. approved floats for Bell 47 B Helicopter. L. B. Arbey, Southwest Municipal Airport, Philadelphia 43, Pa.

For Sale Cessna T 50

Engines have only 750 hrs. total time with a top overhaul 100 hrs. back. Beautiful hand rubbed yellow and black finish. Has always been hangared. Owned by a corporation. Needs minor maintenance and recovering. Of wings and fuselage is reasonable. Can be inspected at Aircraft Service, Inc. Hangar of Cleveland Municipal Airport. Make offer. Contact ES 4216, Aviation Week.

NAL, PCA Sign Interchange Pact

National Airlines, which is continuing operations despite strikes by union pilots and ground personnel, has announced new plans to boost traffic and increase operating efficiency.

Through service between points on the Capital Airlines (PCA) system north and west of Washington, D. C., and cities on NAL's routes south of Washington is contemplated in an interchange agreement recently filed with CAB for approval. At present, passengers change planes at Washington.

► **Surplus Equipment**—The pact would enable both carriers to achieve greater efficiency with their equipment and crews through leasing arrangements. National now has excess equipment in its slack season during the summer months—the time of peak traffic on PCA's links. PCA has a surplus of planes during the winter months when business is booming on NAL's links to Florida and Cuba.

Implementation of the pact is not expected while National is affected by the current strikes. Regarding future labor difficulties, it was agreed that in event of a strike by employes of either line the pact can be cancelled on one day notice.

► **Fare Cut Eyed**—National also disclosed plans to boost traffic during the slack summer season by cutting fares sharply. Beginning May 1, roundtrip passengers would get a 75 percent reduction on the price of their return passage.

Present roundtrip airline fare between New York and Miami is $137.80 plus tax. Under the new rate it would be $86.15. The latter tariff, according to NAL, compares with a $63.48 railroad coach fare and Pullman fare of $122.30 "with the cheapest berth."

► **Period Limited**—The lowered roundtrip rates would apply to trips completed within 18 days during the period from May 1 to Dec. 1. There would be no reservations, but tickets would be honored on all flights.

Excursion rates would be offered throughout National's domestic system, but not between cities north of Norfolk, Va. Thus New York, Newark, Philadelphia, Baltimore, Washington, Richmond and Norfolk would be included in the new roundtrip rates for travel to and from any southern city on the NAL system, but the reduced tariff would not apply between any two of the seven cities named.

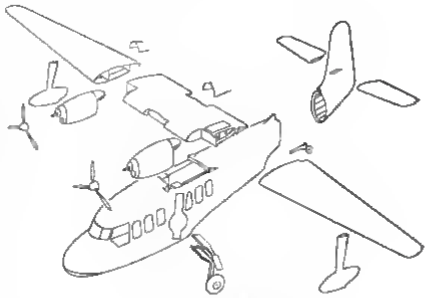
Some Short jottings for airline operators, charter companies, and V.I.P.s

A plane of many parts . . .

The versatile Sealand

The Sealand is truly a plane of many parts It has been designed, backed by nearly forty years' experience of Shorts in aeroplane design, to function equally efficiently as a freight or passenger aircraft, as an air ambulance, travelling office or showroom, or as any one of many other forms of air transport that individual requirements may call into being This new twin-engined amphibian is undoubtedly the most adaptable and universally useful aircraft of its type ever designed, and for charter companies, feeder lines, private owners and industrial concerns alike, it will fulfil its purpose with the certain efficacy so long associated with the name Shorts

The Sealand lands on a clear stretch of as little as 500 yards of water



The Short Sealand as it is dismantled for crating and shipping

Business or pleasure

The private-owner pilot will find in the Sealand qualities that make the aircraft uniquely serviceable for business and pleasure alike. It features those admirable flying qualities that distinguish Shorts machines—perfect handling in the air and a sound all-round performance. When business is laid aside for a brief summer fortnight, four or five friends can travel quickly and conveniently to a holiday spot of their own choosing, without irksome travelling worries.

Luxury travel in the making

The Solents, twelve of which have been already ordered by B.O.A.C. and four by Tasman Airways, are rolling steadily off the production line at the Short factory in Belfast. Each completed aircraft represents thousands of hours of air travel in conditions of ocean-liner luxury. The Solent, with its promenade deck, lounge-cabins, excellent catering arrangements, library—in fact every convenience for long-distance travellers arranged on its two decks—is Shorts' latest contribution to the comfort of those whose journeys take them to all parts of the world

Shorts' Belfast factory. Solents nearing completion

FLYING BOAT PERSONALITIES

★

Capt. J. L. M. DAVYS

No. 2 Pilot, No. 4 Line, B.O.A.C.

★

After three years of "tramping" in the Merchant Service, Captain Davys joined the R.A.F. in 1929. He learned to fly at No. 5 F.T.S., Sealand (affectionately known as Dr. Cunningham's North West Academy for Young Gentlemen). Joining Imperial Airways in 1935, Captain Davys has now logged over 10,500 hours, mostly in flying boats. Practising for the Hendon Air Display, he joined the Caterpillar Club when his tail was cut off by his wingtip. Captain Davys was pilot of one of the Short "C" Class boats, which flew on the pioneer flight from Hythe to Durban in October 1940, and has since done other pioneer flights on the Hythes, Plymouths and Solents as they came into service with B.O.A.C.

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ADVERTISERS INDEX

AVIATION WEEK

MARCH 29, 1948

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SEARCHLIGHT SECTION

(Classified Advertising)

EDITORIAL

Smash That Incentive!

Alaska? Well, it's just U S history all over, like between the big railroads and the upstarts. You've got the big lines who got off to an awful start on cargo. Said it would never amount to anything. It took nervy, restless, ministrious malcontents like Slick, Prescott, Seaboard & Western and California Eastern to show the old carriers they hadn't touched the freight stuff. These newcomers weren't making any money—aren't yet—but they fought like hell and created a new industry from nothing.

Then the big lines, swamped with postwar problems, had to speak for themselves and their stockholders. So they told everybody that the stuff the little guys were flying around was like the little man who wasn't there, and besides the big fellows were here first and what kind of a country did they think this is, anyhow?

Then they put their heads in the sand and waited for the Big Board in Washington to speak.

But the men in those big CAB offices who read the rules the lawyers make with all those decimal point numbers and such, and then tell the airlines how they run their business—they got awful confused. Finally, after all kinds of calls from their friends up in Congress, they decided to let some of the flying draymen keep on trying to make a living.

You'd think maybe they'd learned something about public service. But nope. Now comes Alaska. There's Jim Wooten up there, crazy like a fox and a go-getter if there ever was one. Some call him a gadfly. Mr. Webster says that's a fly that bites or annoys cattle. He reads the books closer than the lawyers and studies the fine print so often they have to keep changing the rules to throw him out every new place he pops up at. But he sells freight transportation, while his competitors sell passenger miles. Naturally, he's unpopular with the other airlines.

A couple of such are Pan American and Northwest. Now, Pan Am is probably the smartest outfit in the industry but it never in its life did anything competition didn't make it do to improve its service, and maybe that is good business because it sure saves money, and Pan Am makes profits too. Northwest is a mighty snappy operation going places fast, but they've got their hands full starting that line over the sprawling Pacific, so they can't be blamed for not being everywhere at once.

But it's the public that counts and the public in the Pacific Northwest and the Territory of Alaska think they are pretty important. All they know is that Wooten's Alaska Airlines, which holds an intra-Alaska certificate, and some other independent operators are trying to do a job between the U S and Alaska that the two big certificated carriers are not doing and never have done. And the experts in Washington sulk because the little fellows are rustling whole planeloads of fish, foods and other necessities while Pan Am complains its little baggage compartments in its passenger liners are running under capacity, and that proves Alaska's cargoes are mirages so why doesn't Wooten and the uncertificated snarl fly get out.

So Wooten says that he carried 84 percent of the Alaska U S air cargo flown by him elf, PAA, and NWA from June through October and he sure is building a lot of business for aviation.

Alaska Airlines claims that although limited to contract and irregular common carrier operations because of the Big Board in Washington, it flew more cargo between here and Alaska last August than NWA carried on its whole domestic system, and more than Pan Am carried on its Pacific-Atlantic and Alaskan services combined. Obviously, a lot of businessmen must have thought enough of that service to pay for it because Alaska couldn't afford to fly stuff free for the publicity.

Now another funny thing is that a big Washington Cabinet member like the Secretary of the Interior last December told CAB in writing that "There is indeed, a present need for a greater volume of air transportation of cargo between the States and the Territory," and "Air cargo service is vitally needed to a far greater extent than now exists." He also said the Federal government should do "everything in its power" to help Alaska progress.

Then the Secretary of the Navy in urging an exemption for uncertificated cargo lines said "We heartily endorse any action which has as its objective and will result in the increase of air transportation and service to develop the Territory of Alaska."

But this month along comes the big CAB which just says flatly that it decides it won't go along with this exemption that it calls regulation 292.7 after all, even though it was its own idea. Which means it won't allow uncertificated cargo operators to conduct temporary scheduled common carrier service between here and Alaska. Of course, that hits the little fellows, and if they haven't been running a safe operation OK, but those big men in CAB had better be sure they are right because they found out once before that Americans don't like to have little people kicked around.

Now, in typical style, the big CAB men in Washington decide they will call a meeting. They issue an order "instituting a proceeding" to decide whether the certificated carriers "are providing adequate cargo service, equipment and facilities between Alaska and the States, and whether there is need for an additional amount or a different type of service, including all cargo flights, to be rendered by the certificated carriers."

The big men in Washington want to lead the cattle to the trough instead of letting a gadfly wake the cattle up so the cattle can decide for themselves whether they are thirsty or not. They'll be spoonfeeding those cattle next with some more of that mailpay nectar and those cattle will get so blasted lazy they won't even graze for themselves. In the meantime the guvment will plow under all the gadflies. It sure beats us.

Now, why did CAB call a conference? We could tell you a lot quicker but it wouldn't be so funny. For example:

> "That notwithstanding the scheduled air service rendered pursuant to the aforesaid certificates, there has occurred a substantial amount of non-certificated air transportation of property, including all cargo flights between points in the U S and points in the Territory of Alaska, notwithstanding charges less than those made by the aforementioned certificated carriers for comparable service . . ."

Now the public knew this all along and maybe that's why it gave more cargo business to Alaska than to PAA and NWA.

Then CAB says the same thing again in some more high falutin talk like this:

> "That such non-certificated transportation of property has substantially increased since the end of the war and has been disproportionate to the amount of property transported on the aforementioned scheduled air service of the certificated carriers . . ."

Now everybody knew this too, especially the airlines.

These uncertificated carriers are operating legally but the Big CAB boys say there's something rotten in Denmark if a brash, industrious outsider can land more business than the more leisurely people who think maybe they don't have to work so hard because they enjoy a certificate from Washington.

Finally, under point number six, those CAB legal eagles can postpone it no more and burst out with this—

> "That such non-certificated transportation of property indicates that there may be a need for additional service in the transportation of property by the aforementioned certificated carriers over their routes between the U S and the Territory of Alaska . . ."

Come now, Wooten. Is there really need for lugging all that stuff? Is this trip necessary? Let's have an investigation, a good old whitewash to prove traffic figures don't mean a thing. Let's see if the tonnage the little guys are carrying shouldn't go to the big fellows instead.

Let the certificate holders feel they're set for life; no unnecessary and expensive progress. Down with the upstart who dares give the public better service than those who run on subsidies. Smash that incentive.

—ROBERT H. WOOD

Stilts for the Big Boys

GENERAL ELECTRIC turbosuperchargers—the "stilts" that permit higher altitude flights—have received their first commercial application on the Boeing Stratocruiser, latest in luxury airliners. This huge commercial aircraft is to be used by several of the major airlines for high speed, economical transcontinental and transoceanic flights. The use of the turbosupercharger is expected to save up to 14 per cent in fuel consumption at cruising altitudes, which will result in a substantial decrease in operating cost and an increase in the range of the plane.

As plans for new commercial planes and airlines get underway, the research, design and manufacture of equipment for them are being carried on in G.E.'s aircraft engineering laboratory where complete systems can be tested. From lighting and ignition systems to jet engines and turbosuperchargers, General Electric is prepared to handle your aircraft equipment needs. For more information and any recommendations you desire, get in touch with your nearest G-E office or write us. *Apparatus Department, General Electric Company, Schenectady, New York.*

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